OREGON DEPARTMENT OF AGRICULTURE

Invasive Noxious Weed Control Program

ANNUAL REPORT

2020

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Photo above: Flowering rush, Butomus umbellatus

OREGON DEPARTMENT OF AGRICULTURE

Cover photo: Gorse, Ulex eurpaeus, in Southern Oregon near the Bandon Dunes Golf Resort invading a mowed area maintained as a fire break.

Invasive Noxious Weed Control Program

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INVASIVE NOXIOUS WEED CONTROL PROGRAM ANNUAL REPORT 2020

Tim Butler
Invasive Noxious Weed Control Program Manager

The 2020 season was the most challenging year for staff in the 45-year program history. COVID-19 and wildfires had big impacts on the state budget. This equated to a cut in the ODA Noxious Weed Program State Lottery Funds of over 80%. These cuts also impacted Oregon State Weed Board (OSWB) Grant funding provided by the Oregon Watershed Enhancement Board. The OSWB funding for 2020 totaling $1.36 million was pulled back, which directly impacted our stakeholders and noxious weed projects throughout Oregon.

During 2020 most of the Noxious Weed Program staff including the program manager were moved into positions with the Hemp Program due to budget shortfalls. In spring ODA was also hit with the loss of Mike Crumrine, Central Oregon Regional Weed Coordinator, when he left for an Invasive Species position with USFS. Due to budget cuts ODA was unable to fill his position. Many of the usual activities completed by the Program were not completed due to the state funding shortfall and staffing changes. The primary weed program work that was completed this year was for federal projects.

Moving forward, the program plans to continue to evolve as is outlined in our five-year Programmatic Strategic Plan. To successfully implement the plan, there needs to be good communication and support between policy makers, both internally and externally, for securing essential base funding to get the program back on track for the 2021-23 biennium.

The Invasive Noxious Weed Control Program role is to provide leadership, communication, and capacity for technical support to cooperators. Our staff and equipment infrastructure are in place regionally to both coordinate and implement invasive weed management projects. Projects are directly tied to natural resource management strategies at federal, state, county, and local levels.

Controlling invasive noxious weeds is a critical component in achieving success in areas of water quality as well as fish and wildlife habitat preservation, especially for salmonids and the greater sage grouse. This includes preserving recreational opportunities, ensuring a robust agricultural economy, and achieving overall functioning watersheds free of invasive weeds. The program needs support of policy makers through stable, flexible funding to achieve these goals. I sincerely hope we have better times ahead with our budget and that together with our cooperators we can continue to make progress in protecting Oregon's valued natural resources and agricultural economy.

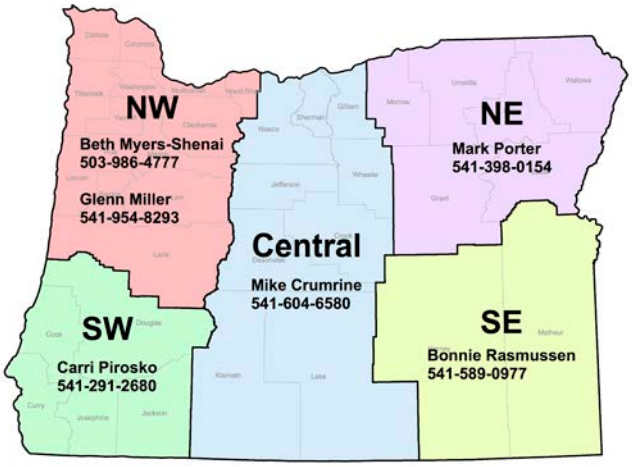
Noxious Weed Control Program staff (from left): Tim Butler, Tom Forney, Beth Myers-Shenai, Glenn Miller, Carri Pirosko, Bonnie Rasmussen, Mike Crumrine, Tristen Berg, Mark Porter, and Joel Price.

Program Overview

The Invasive Noxious Weed Control Program has over 45 years of successful leadership working with cooperators to implement invasive noxious weed prevention and control projects. The investment in invasive weed control has tremendous value to Oregonians. For example, a recent study, "Economic Impact from Selected Noxious Weeds in Oregon," looked at 25 of 128 state listed noxious weeds and estimated their impact at $83.5 million a year to Oregon's economy. If uncontrolled, the impact potential of these weeds could rise to $1.8 billion. For every dollar invested in Early Detection and Rapid Response (EDRR) projects, there is a $34 benefit to Oregon's economy.

Our mission is to protect Oregon's natural resources and agricultural economy from the invasion and proliferation of invasive noxious weeds by:

- Providing leadership and coordinating noxious weed management
- Serving as a technical resource for noxious weed issues
- Providing public outreach, education, and awareness
- Conducting weed risk assessments and listing State listed Noxious Weeds
- Implementing Early Detection and Rapid Response (EDRR) projects for new invading weeds
- Coordinating and implementing biological control of weeds
- Administering the State Weed Board Grant Program



Program Regional Staff. Salem Staff—Program Manager: Tim Butler, Projects Coordinator: Tom Forney, Biocontrol: Joel Price, Grant Coordinator: Tristen Berg.

The program has ten technical staff located in Salem, Eugene, Grants Pass, Burns, Enterprise, and an open position in central Oregon. The state is divided into five regions for the purpose of coordinating projects, working with local partners, and implementing a statewide approach to invasive weed management. The program also employs a program manager, project coordinator, biological control entomologist, grant coordinator, program assistant, and seasonal staff to help implement projects.

Invasive Noxious Weed Control staff collaborate with private landowners, county weed programs, state and federal land managers, and other cooperators to implement integrated weed management projects throughout their regions. The program is focused on Early Detection and Rapid Response for new invading noxious weeds, implementation of biological control, completion of statewide weed inventory and surveys, technology transfer and noxious weed education, noxious weed data maintenance, weed risk assessments, and maintenance of the Noxious Weed Policy and Classification System.

Land ownership in Oregon, roughly 50% of the state is in federal ownership, 45% in private and the remainder in state, county, tribal, and other ownerships.

Program staff works closely with the Oregon State Weed Board (OSWB) to host meetings, provide updates and technical support, and administer OSWB grants. The OSWB is a seven-member board appointed by the ODA Director. The primary mission of the OSWB is to provide oversight for the listing of noxious weeds, guide statewide noxious weed control priorities, and award noxious weed control grants.

A statewide approach that engages partners has proven successful for managing noxious weeds. Weeds do not respect jurisdictional boundaries and by their nature spread from one land ownership to another. To implement an effective weed program, the Noxious Weed Control Program must foster relationships and work with private, federal, state, county, and local interests. Developing and maintaining partnerships is critical to accomplishing our program mission.

The program works closely with federal partners to develop Memoranda of Understanding (MOU), cooperative agreements, and contracts to facilitate control projects and financially assist the program. About 40 percent of the program's budget comes from federal sources and the balance is State Lottery and General Funds. Primary federal support comes from the US Forest Service Region 6 (USFS), Oregon Bureau of Land Management (BLM), US Army Corps of Engineers (USACE), and the US Bureau of Reclamation (BOR).

2020 Weed Program Accomplishments

The Noxious Weed Control Program saw a significant reduction in accomplishments due to State Lottery and General Fund shortfalls contributed to Covid-19, wildfires and other factors. Despite the challenges, the program was able to complete a majority of our federal project obligations and complete a number of statewide priorities.

One of the big highlights for 2020 was biocontrol, ODA was able to maintain priority biocontrol projects and expand efforts for two new agents on gorse and knotweed. Many of the other Lottery Funded activities did not fare as well and were curtailed. Overall the program completed 50% fewer projects then 2019, treatment acres were down by 40% and we conducted fewer education and outreach activities, made fewer presentations and canceled many of our longstanding events including Oregon Invasive Weed Awareness Week, the summer OSWB field tour and meetings, and Interagency Noxious Weed Symposium. Additionally, most OSWB grant program activities including the 2020 grant cycle and monitoring were deferred.

Program staff implemented 70 noxious weed projects, conducted 298 treatments, completed 21 pre- and

Masking up was the norm for 2020.

post-treatment monitoring activities, and conducted 21 weed surveys. Staff treated 524.2 net acres over 110,316.5 gross acres.

One hundred thirty-five biological control releases were made at 54 sites, and 15 species of biocontrol agents were monitored at 83 sites over 17 Oregon counties to determine establishment and effectiveness.

Staff gave 15 presentations and attended 113 meetings for consultation, planning, and outreach.

Oregon State Weed Board Update

One of the big changes this year was the retirement of Jim Harris, the current chair of the Oregon State Weed Board. Jim served on the Oregon State Weed Board for 35 years and was presented a plaque of appreciation for his many years of service at the February meeting. Senator Bill Hansell joined the meeting to provide some history of his time on the OSWB with Jim. Jim Harris and Senator Bill Hansell were part of the founding members on the Oregon State Weed Board and the Oregon State Weed Board Grant Program. Senator Bill Hansell served as chair for many years during his 27 years on the board until he retired as Umatilla County Commissioner. Jim took over as the OSWB chair at that time. Jim's knowledge of noxious weed issues around the state will be greatly missed. The gavel was passed to Craig Pope as new chair and Carson Lord, as new vice chair. ODA will start the process to fill the vacant eastern Oregon board member position in 2021.

Senator Bill Hansell and Jim Harris at retirement award presentation.

Jim Harris retirement award presentation with ODA Director Alexis Taylor, Jim Harris and Tim Butler, ODA Noxious Weed Program Manager.

Due to lottery revenue cuts as a result of the COVID-19 pandemic and COVID-19 concerns there was no summer OSWB meeting.

OREGON STATE WEED BOARD GRANT PROGRAM

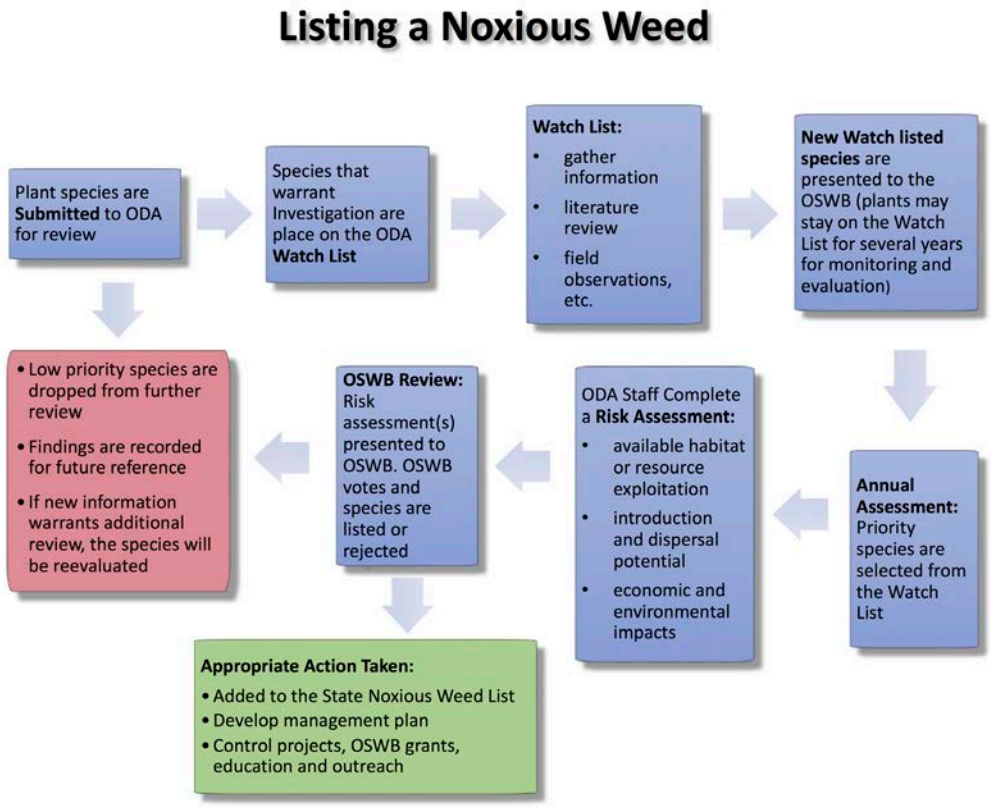
The OSWB Grant Program is a partnership with the Oregon Watershed Enhancement Board (OWEB) and the ODA Noxious Weed Control Program. Funds reside within the OWEB and the Noxious Weed Program oversees and administers the grants. There are two grant cycles per biennium and grants are awarded annually. Under the OSWB Grant Program, staff and the OSWB work to fund as many high-priority projects as possible with the available funds. OSWB grants meet specific criteria and are used to implement projects for the protection and enhancement of watershed health and wildlife habitats. Success of the OSWB Grant Program is due to the outstanding work that is being accomplished on the ground by grantees through regional partnerships.

Due to COVID-19 and lottery fund shortfalls OWEB pulled back the remaining $1.36 million from the 2020 OSWB grant program. ODA was not able to offer a 2020 grant award. The loss of funding had a negative impact on many cooperators and noxious weed control work around the state. Some cooperators depend on OSWB Grants to match other grants, so loss of funding had a compounding affect.

At the last Oregon Watershed Enhancement Board meeting held in December of 2020 the most recent lottery revenue forecast for 2021-2023 was optimistic and OWEB is planning to restart annual grant solicitations. This means OWEB will be working with ODA to open an OSWB grant cycle pending available funds. Noxious Weed staff will be working with OWEB and OSWB to possibly open a grant cycle in March of 2021 for an early July grant award if the lottery forecast comes through.

RISK ASSESSMENTS AND NOXIOUS WEED LIST UPDATE

The Noxious Weed Control Program develops risk assessments and gathers information to assist the OSWB in the decision making process to maintain and update the State noxious weed list. The Noxious Weed Program's weed risk assessment process is used to help identify high risk species and determine which candidates should be listed.



Weed List Changes for 2020:

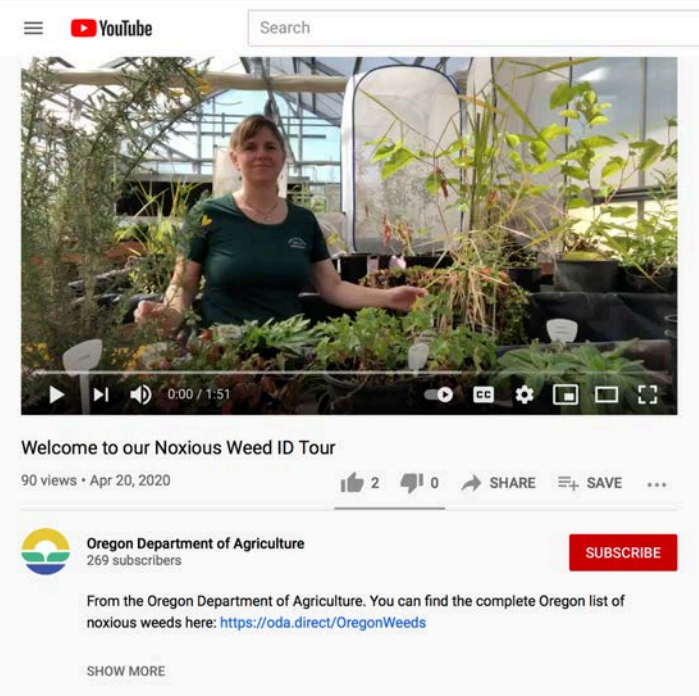
- Added: Turkish thistle, *Carduus Cinereus* to the "A" List
- Added: English hawthorn, *Crataegus monogyna* to "B" List
- Added: Giant reedgrass, *Arundo donax*, to the "B" List

New "A" listed noxious weed, Turkish thistle, Carduus Cinereus.

Education and Outreach Activities

Three of the big activities centering around education and outreach that ODA sponsors and promotes were cancelled this year. Due to current circumstances the Oregon State Fair Invasive Noxious Weed Booth, Oregon Interagency Noxious Weed Symposium and Oregon Invasive Weed Awareness Week were cancelled. Prior to the pandemic, staff participated in various education and outreach events promoting invasive weed awareness. Staff made 15 presentations to stakeholder groups and attended over 131 meetings for consultation, planning, and outreach with cooperators and private landowners.

- Alyssum Working Group
- Baker County Sage Grouse FIP grant Tech Review
- Cattlemen's Association Meeting - Springfield
- Clackamas River Invasive Species Partnership
- Columbia River Basin Flowering Rush CWMA
- Douglas County Weed Days
- Gorse Action Group (GAG)
- Intergovernmental Cultural Resource Meeting
- Lake County, OR and Modoc County, CA Joint Meeting
- Lower Columbia River Flowering Rush Work Group
- Mt. Hood Partners Meeting
- Northeast Oregon Noxious Weed Contractor's Meeting
- Northeast Oregon Meadow Hawkweed Work Group
- Oregon County Weed Control Association
- Oregon Invasive Species Council
- Oregon SageCon Summit
- Oregon SageCon Invasives (annual grass) Initiative Work Group
- OSU Extension Pesticide Core Training
- OSU Weed Science Course Labs
- Pull Together (4-county CWMA)
- Umatilla County EDRR Work Group Meeting (CTUIR, Umatilla Co., UNF)
- Wallowa County IAG meeting
- Wallowa County Grain Growers
- Western Invasives Network



Beth Myers-Shenai hosting a virtual weed ID tours from ODA's greenhouse.

OUTREACH AND WEED ID VIDEOS

The noxious weed program has set aside space in its greenhouse and dedicated time to curate live specimens of noxious weeds and other invasive plants to assist training survey crews and citizen scientists on correctly identifying them. The plants have been brought to a number of outreach events including being prominently displayed at the program's booth at the Oregon State Fair and being used for the Oregon Vegetation Management Association's weed quiz at their annual conference. The specimens are also available to cooperators to check out and use at their outreach events.

ODA often hosts a spring open house and invites cooperators to a live plant display of our noxious weed collection to provide an opportunity to see these plants first hand and in person. As an extension of this outreach event Beth Myers-Shenai organized a series of weekly virtual weed ID tours from ODA's greenhouse and posted them on YouTube.

OREGON INVASIVE WEED AWARENESS WEEK

Our usual weed awareness week when the Governor declared a week in May as "Oregon Invasive Weed Awareness Week" was canceled. This is an opportunity to highlight and showcase the importance of prevention and control of invasive weeds, their impacts and some of the work that is being done throughout the state.

As an alternative staff showcased weed control activities around the state by posting photos on Facebook and sharing information with cooperators. The Invasive Noxious Weed Control Program uses

Douglas County invasive noxious weed awareness outreach.

Facebook and other social media to post announcements, promote upcoming events, provide updates on control projects, share progress and updates on grant projects, and provide timely news articles to promote greater public awareness. The program also uses Flickr, a photo-based social media site, to compile photographs of individual noxious weeds and feature outreach activities.

Special Projects

WEED FREE FORAGE CERTIFICATION

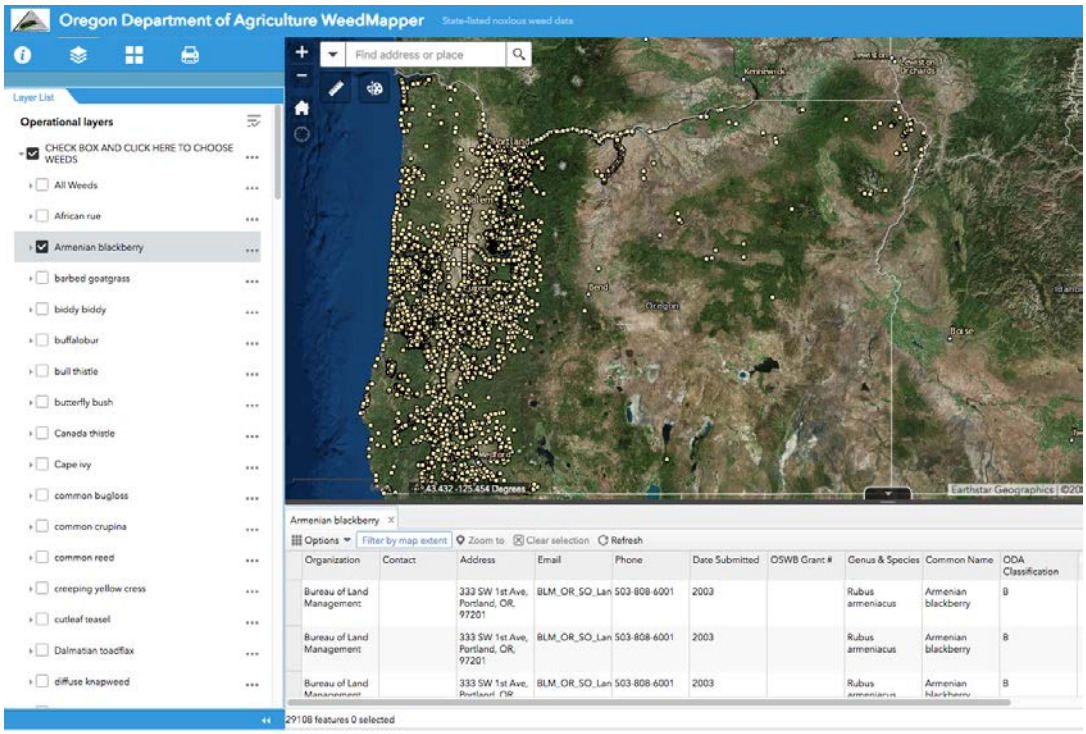
The Oregon Department of Agriculture completed inspections for 37 growers and certified 2,882 acres as weed-free in 2020. The program has been very successful in providing certified weed-free hay and straw to meet the needs for trail users and reducing the spread of invasive weeds. The program is administered through the ODA Commodity Inspection Program and follows the North American Invasive Species Management Association (NAISMA) weed free forage standards. The USFS supports this effort through State & Private Forest Health funding to ensure weed free products are available for use on National Forest lands.

WEED FREE GRAVEL CERTIFICATION

In 2020, ODA completed the second year of the new Weed Free Gravel program that provides voluntary annual inspection and certification to quarries to provide consumers assurance their operating areas are free of problem noxious weeds. There were 5 quarries certified and 2,513,000 tons of gravel and aggregate produced. The standards for this program mirror those of the North American Invasive Species Management Association (NAISMA) with the addition of any Oregon-listed noxious weeds that are not already included. Inspections are performed by ODA's Commodity Inspection Program, which also inspect fields for Weed Free Forage certification.

WEEDMAPPER

WeedMapper is an extensive database of noxious weed sightings displayed in an interactive website map. Each year, the Noxious Weed Program collects new reports of weed locations from multiple agencies



WeedMapper screenshot showing distribution of Armenian blackberry.

and organizations around the state to add to the display, much of which originates from projects funded by Oregon State Weed Board grants. The Invasive Noxious Weed Control Program also has a data sharing agreement with imapinvasives.org which collects data from multiple sources and includes confirmed reports from the Oregon Invasive Species Hotline, https://oda.direct/WeedMapper. The data and map displays are used by noxious weed managers throughout Oregon and beyond for planning, reports, and evaluating changes in weed populations over time. ODA maintains the database and completed periotic updates of new weed locations from cooperators in addition to the data collected by Noxious Weed Program staff.

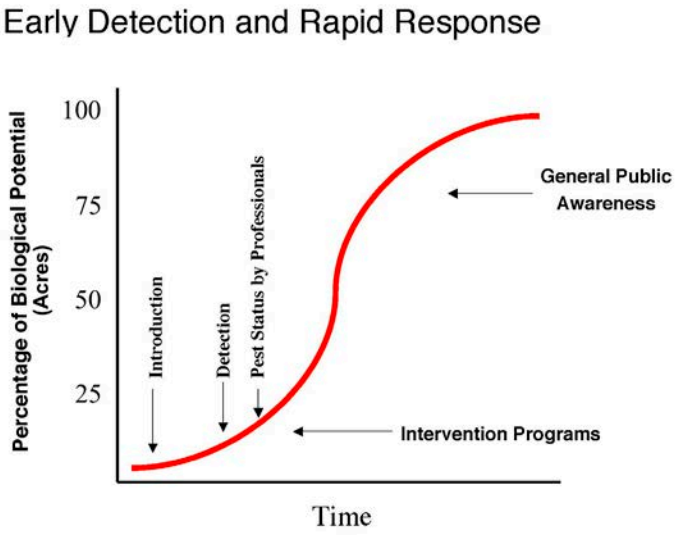
Early Detection and Rapid Response

EDRR is an essential focus of the program, with the goal of preventing the introduction and spread of new weed species through early detection efforts and quick implementation of control measures. The Noxious Weed Control Program accomplishes EDRR through listing and prioritizing state listed noxious weeds, developing statewide management plans, and implementing EDRR projects. Priority listed species, A-listed and T-designated noxious weeds, are of limited distribution in the state and are primary EDRR targets.

Priority species are incorporated into presentations and outreach activities to increase public awareness. Pest alerts and educational materials are distributed in an effort to help locate and report new infestations. Surveys for target weeds are conducted and if found, rapid response projects are planned and implemented for eradication or containment.

Noxious Weed Control Program staff work with state and federal cooperators, county weed programs, Cooperative Weed Management Areas (CWMAs), and private landowners to implement EDRR projects. Many EDRR projects are funded in part by OSWB grants and/or with help from federal partners. The program implements 63 EDRR control projects targeting 29 A-listed and T-listed species. During the 2020 field season projects were prioritized and we narrowed our focus to the highest priority projects that could be completed due to Covid-19 restriction and other constraints.

The following are highlights of these projects:



AFRICAN RUE, *PEGANUM HARMALA* – A(T)

African rue is difficult to control and containment is considered a success. Two locations have been detected in Oregon that require annual treatment. The first report was from an OSU herbarium record from the mid-1960s in Crook County, but it did not mention a specific location. A member of the Native Plant Society located the site in 1991. African rue has been treated as an A-listed weed by the Noxious Weed Program and Crook County since the rediscovery.

The main portion of the infestation is on BLM land along Highway 27, with BLM providing most of the funding for control. ODA did not assist with survey or treatment this season due to staffing and budget shortfalls.

In September 2008, a second infestation was reported and confirmed on a tribal allotments located in the Harney Basin southeast of Burns. The subsequent survey revealed a project area of 2,700 gross acres and 19 landowners, including the Department of State Lands, private landowners, and tribal lands. This project is now largely funded by an OSWB grant to Harney County and is monitored by Noxious Weed Program staff. Harney County was able to continue treatments in 2020. Overall, both populations of African rue have been reduced.

BARBED GOATGRASS, *AEGILOPS TRIUNCIALIS* – A(T)

Barbed goatgrass, an A-listed weed, is only know from two locations off Highway 199. One near Rough and Ready Creek and the other at Gold Canyon south of Cave Junction in Josephine County. While infested acres of barbed goatgrass are increasing in California, they are the only known population in the state. The infestation extends across private, state, and federal boundaries. Support from both the Rogue River-Siskiyou National Forest and the Medford-Grants Pass BLM Office contribute to the ongoing success of this eradication project. The Gold Canyon site was sprayed this season and the Rough and Ready site was pulled by ODA and federal crews.

Barbed goatgrass volunteer pulling crew.

CORDGRASS, *SPARTINA* SPP. SURVEY AND TREATMENT – A(T)

The state has maintained an excellent track record of finding and treating new infestations of cordgrass. Portland State University's Center for Lakes and Reservoirs (PSU) and Noxious Weed Program staff have developed a comprehensive plan to implement regular surveys of 13 Oregon estuaries that are at high risk of infestation. Three species of Spartina have been documented in Oregon. Prior to 2013, only two species, *S. alterniflora* and *S. patens*, were known to occur. The third species of cordgrass, *Spartina densiflora*, was detected in Coos Bay during a 2013 survey.

The majority of the 2020 Spartina work was conducted in the southwest Oregon. Both smooth cordgrass (*Spartina alterniflora*) and dense flowered cordgrass (*Spartina densiflora*) have been previously detected in Coos Bay. Smooth cordgrass found east of Charleston Marina in 1995 was manually removed over the course of several years. The site was monitored during the winter of 2020, no regrowth has been observed since 2007. Six clones of dense flowered cordgrass were observed and manually removed from the Jordan Cove area in 2013. In 2019, thirty small, *S. densiflora* clones were found along the shoreline near Jordan Cove, the same area where *S. densiflora* was found and removed during 2013. In 2020, Noxious Weed Program staff, in collaboration with Portland State University and Roseburg Forest Products, conducted early detection Spartina surveys in portions of Coos Bay, including Jordan Cove. Thirty-six, small, *S. densiflora* clones were found and removed along the shoreline near Jordan Cove, the same area where *S. densiflora* was found and removed in 2013 and 2019.

A-rated dense flowered cordgrass in Coos Bay.

FLOWERING RUSH, *BUTOMUS UMBELLATUS* – A(T)

Since 2014, flowering rush has been a high priority for detection and control efforts in Oregon. Several small populations of flowering rush were found in Lake Wallula on the Columbia River in Umatilla County, Oregon in early August 2014. Surveys conducted by Portland State University's (PSU) Center for Lakes and Reservoirs detected the infestations. These were the first known occurrences in Oregon of this A-listed weed. Populations of flowering rush were already known from the Spokane, Yakima, Pend Oreille, Snake, and Flathead rivers. Prior to 2014, the furthest known downstream population on the Columbia was at Two

Flowering Rush, Butomus umbellatus.

Rivers Park in the Tri-Cities, Washington.

Flowering rush continues to be a focus of survey and control efforts on the Columbia River. The Columbia River Basin Flowering Rush Working Group and cooperators from Oregon and Washington coordinate to work on the issue. Until 2020, ODA has been the lead for coordinating and organizing meetings for the working group. This year the duties were handed off to Jenifer Parsons, Aquatic Plant Specialist with Washington State Department of Ecology due to budget cuts. In addition, ODA was not able to coordinate annual survey and treatment of the Oregon Columbia River flowering rush populations. The newest population of flowering rush was detected in a pond in Klamath County toward the end of the 2017 field season. That site has been treated since 2018. Being a small outlier, the site was prioritized and treated for a third time in 2020. The pond was drained in 2019 and has remained empty making access and treatment easier.

GARDEN YELLOW LOOSESTRIFE, *LYSIMACHIA VULGARIS* – A(T)

An A-rated weed, garden yellow loosestrife, was found in 2016 on Wheatland Bar on the Willamette River along the Yamhill-Marion County line. Garden loosestrife is a riparian weed that outcompetes native vegetation and even the invasive, purple loosestrife in wetlands and shoreline settings. This new invader was quickly treated by the Noxious Weed Program in 2016 and follow-up monitoring and treatment has been completed through 2019. ODA coordinated with Yamhill SWCD to take the lead on survey and management of this site for 2020. Survey and treatment was conducted by Yamhill SWCD, but they had no previous experience at surveying for the plant and were not confident they found it all.

Stem and flowers of Garden Yellow Loosestrife, Lysimachia vulgaris.

GIANT HOGWEED, *HERACLEUM MANTEGAZZIANUM* – A(T)

Noxious Weed Program staff collaborate with the City of Portland and Clackamas, Columbia, Clatsop, Tualatin, Tillamook, and Hood River SWCDs to monitor and treat all known locations of giant hogweed in Oregon. The majority of the sites occur in northwest Oregon in the Portland Metro area. A large percentage of the sites are in residential landscapes or escaped populations from ornamental plantings. Fanno Creek and Vermont Creek, both in the Metro area, are the two historically known riparian sites, but there have been no plants found at Vermont Creek since 2013. Of the 193 known sites, 173 are considered eradicated. Overall, active giant hogweed sites and plant numbers have dropped significantly since first discovered in Oregon in 2001. Much of the work was conducted by cooperators this season with some coordination from ODA.

GOATSRUE, *GALEGA OFFICINALIS* – A(T)

Goatsrue is a state and federally listed noxious weed. Goatsrue is historicly known from sites in lane, Josephine and Klamath counties. It is currently found at one location in Clackamas County, four locations in Portland, and one site near Tualatin. Historically ODA has assists with survey and treatments; for 2020 survey and treatment of populations in the Portland area were conducted by local cooperators.

HOARY ALYSSUM, *BERTEROA INCANA* – A(T)

Hoary false alyssum was listed as an A-listed weed in 2015. Prior to 2020, it occurred in two regions of the state; one from northeast Oregon near the town of Wallowa and in Deschutes County. A third population was found this season in Baker County. The Noxious Weed Program treated thirty plants at the Wallow County site in 2020. ODA also assisted Baker County with a survey at the new location. The Baker County site is estimated to be 40 acres in size and incorporates four private ranch properties. Treatment and inventory efforts with Baker County will begin in spring of 2021. Deschutes County was able to successfully treat and manage the central Oregon sites this season.

MATGRASS, *NARDUS STRICTA* – A(T)

Matgrass is a small perennial bunchgrass native to Eastern Europe. It is unpalatable to grazing animals and can quickly render infested pasturelands unusable and outcompetes desirable or native species. Matgrass was first noticed about 37 years ago in a peat pasture near Fort Klamath. The Klamath site was the only Oregon infestation until 2015, when three new coastal sites were detected. The new costal finds prompted the Noxious Weed Program to act in 2016, expanding efforts for detection and control in coastal counties.

Clump of Matgrass, Nardus stricta, from Cape Blanco.

Infestations were confirmed at Cape Blanco airport in Curry County and Devil's Kitchen State Park in Bandon, Coos County. A third site was also confirmed in Clatsop County on the North Coast Land Conservancy. The south coast sites are in an area of botanical importance. The Coos site is noted for a unique pygmy forest and is one of the few remaining habitats for the federally endangered western bog lily.

The Klamath County Matgrass Project is a Lottery funded project and due to limited staffing and funds the sites were not treated in 2020. The Noxious Weed Control Program continued treatment efforts for coastal prairie habitats, most of the sites are treated using federal funds. Treatments are proving successful at the coastal sites and the occurrence of new finds has declined.

MOUSE-EAR HAWKWEED, *PILOSELLA PILOSELLA* – A(T)

Mouse-ear hawkweed is a yellow-flowered species of the aster family native to Europe and northern Asia. Similar to most other hawkweeds, it is highly invasive in pasture and meadows and is highly variable and adaptive to a wide range of habitats. One site is known to occur in Yamhill County. It was reported in 2010 by The Nature Conservancy (TNC) at a location in Gopher Valley and has spread over 20 acres in an oak woodland habitat. The site is managed by TNC for the protection of Kincaid's lupine. The Noxious Weed Control Program has worked with TNC to manage the infestation since it was discovered until 2018.

Mouse-ear Hawkweed, Pilosella pilosella, Plant with stem and bud.

Starting during 2018 field season, the Noxious Weed Control Program used an OSWB grant to fund treatment of the site with Yamhill SWCD's assistance. Yamhill and the Noxious Weed Program continued to monitor and treat the site in 2019. In 2020, the project was complete by Yamhill SWCD without ODA's help.

Monitoring Mouse-ear hawkweed site in Yamhill County, Glenn Miller and Joel Donnely, Yamhill SWCD.

OBLONG SPURGE, *EUPHORBIA OBLONGATA* – A(T)

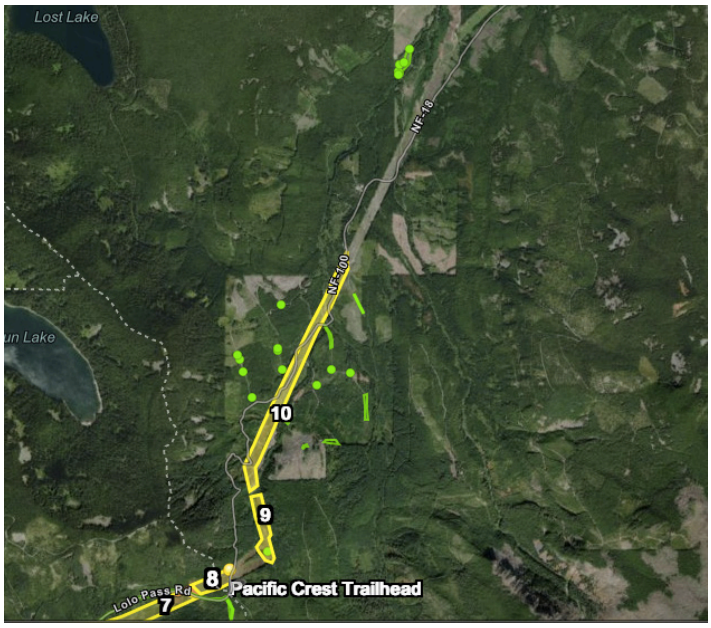
Oregon's largest site is located in Salem and is believed to have been introduced as a contaminant in flax seed that was grown and processed in the area in the mid-1900s. The core infestation is at the Oregon Office of Emergency Management along the south shore of a pond adjacent to Mill Creek. Several small sites continue to be monitored and treated annually. Overall the Noxious Weed Program has observed a 99% decrease.

There are also a number of scattered locations in the Portland Metro area that the City of Portland and Clackamas SWCD staff are monitoring and treating. It is not entirely clear how these urban locations originated, but some of them may have been planted as ornamentals. In recent years, there have been a number of oblong spurge sites reported by cooperators around northwest Oregon although it appears this is due more to increased awareness of this noxious weed rather than a sudden spread. Benton SWCD detected three new sites in 2019 and one new site in 2020. The Noxious Weed Control Program assisted in a limited capacity with survey and treatment.

ORANGE HAWKWEED, *PILOSELLA AURANTIACUM* – A(T) AND MEADOW, *P. CAESPITOSUM* – B(T)

Hawkweeds are highly invasive members of the aster family. Once established, hawkweeds can quickly develop patches that spread until they cover an area forming solid mats of rosettes. Hawkweeds displace native plants, posing a serious threat to native plant communities. They can also dominate pastures, lawns, and roadsides, crowding out desirable species.

Thanks to planning and coordination by the Mt. Hood Partners group earlier in the year, the Lolo Pass orange and meadow hawkweed infestation was able to be successfully treated in June 2020. All 365 acres in the core areas under the BPA powerlines were covered



Hawkweed sites detected and treated in Hood River County adjacent to the Mt. Hood National Forest.

and treated thanks to a contract backpack crew hired by Clackamas SWCD as well as Clackamas SWCD, USFS and Noxious Weed Program staff. The City of Portland Water Bureau contract crews also covered areas within the Bull Run watershed that are adjacent to the corridor. In addition, Noxious Weed Program crews surveyed and treated all roads and spurs within the greater 5,000-acre project area site to protect vulnerable wilderness meadow habitat. In 2020, surveys and treatments were extended both north and south along the corridor to contain further spread. Total plant numbers are a fraction of initial populations and will continue to be suppressed.

Flowers of Orange Hawkweed, Pilosella aurantiacum.

PATERSON'S CURSE, *ECHIUM PLANTAGINEUM* – A(T)

Paterson's curse is an A-listed weed that threatens Oregon's native habitats with the potential to invade oak woodlands, native prairies, and dry upland slopes. Despite a beautiful appearance, this invasive weed truly is a curse in that it is extremely toxic to livestock. It infests thousands of acres across Australia. Two Oregon counties have infestations, Douglas and Linn, and both sites are under intensive eradication. Both sites continue to see an overall decline in plant numbers and acres treated. The Linn County site saw a significant decline in plant numbers in 2019 and again in 2020. Less then 1.25 acres in total were treated in the state this year.

Dillard, Douglas County. Paterson's curse infestation when first found in 2004.

Close up of flowers of Paterson's Curse, Echium plantagineum.

PLUMELESS THISTLE, *CARDUUS ACANTHOIDES* – A(T)

Plumeless thistle is known from three counties: Klamath, Grant, and Wallowa. Originally, plumeless thistle sites were discovered nearly 20 years ago in Grant County. A second location was found in Klamath County in 2007 and most recently, several sites were discovered in Wallowa County. In a usual year the Noxious Weed Control Program monitors the sites and works with the respective counties to treat the infestations aggressively. ODA had to rely heavily on the Counties in 2020, staff did not participate in plumeless thistle work due to budget shortfalls and COVID-19.

RAVENNAGRASS, *SACCHARUM RAVENNAE* – A(T)

Ravennagrass was listed as an A-listed weed in 2015. At the time of listing, the only known site was near McNary Dam in a wildlife area managed by the US Army Corps of Engineers. Additional locations were found in Malheur County during surveys conducted in 2016. All of the sites were monitored and treated in 2017. Observations from 2019 indicate that Malheur County has multiple new sites and some are moving out of yards and into waste areas, irrigation ditches, and along roadsides. The Noxious Weed Control Program was not able to visit or treat the sites in 2020.

SQUARROSE KNAPWEED, *CENTAUREA VIRGATA* – A(T)

Squarrose knapweed is an A-listed weed in Oregon. A historic site in Malheur County continues to be monitored and no plants have been found since 2003. A Grant County site has been under intensive treatment since its discovery in the early 1980s. Grant County manages the project through an OSWB grant, while the Invasive Noxious Weed Control Program continues to monitor treatment efficacy. The original project area was spread across 3,200 gross acres. Over the past 30 years, the infestation has been reduced by 99% to less than 3.4 net acres. Grant County was able to continue treatment of the site in 2020, but ODA was not able to assist.

Squarrose Knapweed, Centaurea virgata.

TAURIAN THISTLE, *ONOPORDUM TAURICUM* – A(T)

Taurian thistle is a sister plant species to Scotch thistle, *Onopordum acanthium*, and has the same potential to be invasive. In Europe, it is more aggressive than Scotch thistle. Taurian thistle is lime green with large baseball-sized terminal flower heads that resemble an artichoke. The first Oregon infestation was detected and treated in Klamath County in 2007. Two new sites were found in 2012, located west of Klamath Falls on Hwy 140. Both sites totaled 200 plants and covered one net acre. Due to limited staffing the Noxious Weed Control Program was not able to assist. Klamath County continue to monitor and treat sites in 2020.

WATER PRIMROSE, *LUDWIGIA SPP.* – B(T)

The Noxious Weed Control Program staff and cooperators have made efforts to escalate detection and control efforts for water primrose in the Willamette Valley. This species, along with flowering rush and yellow floating heart, has the potential to cause significant impacts to riparian health and water resources. These species alter water quality, increase sedimentation, and contribute toward the loss of important habitat. Control efforts are now being coordinated to reduce or eliminate Ludwigia from water bodies in outlier sites in the Willamette system. OSWB grants and Program staff are assisting with treatments and surveys in the Willamette River system. Partners include the Benton SWCD, US Army Corps of Engineers Willamette Valley Projects, ODFW, City of Eugene Parks, City of Portland, Long Tom Watershed Council, OPRD, and Willamette Riverkeeper.

The majority of ODA's activities were deferred for 2020 along with much of the OSWB grant supported control work.

WELTED THISTLE, *CARDUUS CRISPUS* – A(T)

Welted thistle, first thought to be musk or plumeless thistle, was discovered in 2016 in Wallowa County. Welted thistle is only known in North America from one other site west of the Rockies, in British Columbia, Canada. The project is seeing success. In 2019, sites were monitored on a weekly basis through the growing season and only six plants were found. This year ODA staff worked with Wallowa County's Weed manager and private landowners to monitor and treat the area.

Welted Thistle, Carduus crispus.

YELLOW FLOATING HEART, *NYMPHOIDES PELTATA* – A(T)

Yellow floating heart is an escaped ornamental aquatic that is highly invasive in ponds and waterways. Infestations are proving to be difficult to eradicate and are requiring annual treatments. First detected in 2004 in Washington County, it is now known from Lane, Linn, Jackson, Douglas, and Deschutes counties. As of this field season, over 25 sites have been documented. The number of new sites continues to increase in western and central Oregon. In recent years a number of new sites were found in Marion, Douglas, Lane, and Deschutes counties and sites are now starting to be identified and treated on the Willamette River system. The Program is working with a number of partners and private landowners to manage this species including Willamette Riverkeeper, local SWCDs, local watershed councils, and the Umpqua National Forest.

Yellow Floating Heart, Nymphoides peltata.

In 2020 treatments were limited, most of the Willamette Valley and Deschutes County sites were not monitored or treated. Outlier populations in Douglas County were treated. A Douglas County site first treated in 2018 on the Umpqua National Forest in Beaver Pond was monitored and treated for a third season. Treatment is showing good results with a 75% reduction of plants. A second pond on the Umpqua National Forest, Willow sump, was detected in 2011 and has been treated annually by Noxious Weed Program staff. It is 99% eradicated.

ALYSSUM (YELLOWTUFT), *ALYSSUM MURALE* AND *A. CORSICUM* – A(T)

Alyssum murale and *A. corsicum* species are unique plants in that they can hyper-accumulate metals extracted from the soil into their leaves and shoots. In

Alyssum helicopter survey crew.

the 1990s, Viridian LLC promoted the use of *Alyssum* species for phyto-mining, the process of using plants to accumulate metal and then harvest it from naturally high mineral (serpentine) soils. Viridian planted *Alyssum* on nine serpentine-rich sites in the Illinois Valley in southwest Oregon. The Viridian venture failed and the project was abandoned in 2005. *Alyssum* spread from the planted fields and became invasive in the surrounding area.

River crossing while hand pulling and bagging alyssum, Illinois Valley.

The Illinois Valley contains the largest concentration of serpentine soils in Oregon and supports a diverse and unique flora. There are more state and federally listed "Threatened" and "Endangered" plants on serpentine soils in Oregon than on any other soil class. Many of the planted *Alyssum* fields were directly adjacent to these highly valued botanically rich

Alyssum Crew, physical distancing.

treasures. Treatments started in 2009. Since that time, the Invasive Noxious Weed Control Program, BLM, USFS, The Nature Conservancy, Cultural Ecological & Enhancement Network, private landowners, and citizen volunteers have collaborated in pushing *Alyssum* closer to our eradication goals. Containment efforts continue with survey and control. In 2020, a helicopter survey resulted in the detection of several new populations of *Alyssum* on the edges of known infested areas and all areas were manually treated this season by ODA and cooperators.

WOOLY DISTAFF THISTLE, *CARTHAMUS LANATUS* – A(T)

Woolly distaff thistle was discovered in Oregon in 1987. This non-native is known to infest vast acreages in California and Australia. Elimination of seed production and seeds banked in the soil is key when battling an annual thistle. The project involves the control, survey, and monitoring of all known infestations of distaff thistle. At a minimum, each site is worked three times each year. Since the inception of this project, woolly distaff thistle has been reduced by 99% from historic levels; 2.48 net acres were treated and over 4,005 gross acres were surveyed in 2020.

Wooly distaff thistle, Carthamus lanatus.

ODA's Carri Pirosko with a bundle distaff thistle.

Highlights in Biological Control of Weeds

Classical weed biological control is the planned introduction of natural enemies from a plant's native range to an invaded range in order to establish an ecological equilibrium between the herbivore agent and invasive weed host, below an economic impact threshold. Since 1947, there have been 80 species of classical biological control agents introduced against 28 species of noxious weeds in Oregon (34% widespread and effective, 41% actively redistributed, 25% no-longer used). This results in overseeing 122 biocontrol projects (weed/agent combinations). The Noxious Weed Program houses the State's biocontrol database that contains more than 7,427 biocontrol release records from federal, state, county, and private cooperators.

Oregon's biocontrol program originated in tansy ragwort biological control agents decades ago. Despite the agents being widespread and effective, tansy seems to be on the rise due to less spraying, mowing, and digging in areas where biocontrol is not well suited. Much of the biocontrol program time in early summer 2020 was spent answering dozens of phone calls and emails regarding a 2020 surge in tansy, largely due to roadside maintenance being put on hold during COVID-19 lock-downs. In natural areas, tansy agents continued to cycle but overall exert excellent control. Six tansy sites were monitored in 2020 to track eventual patch decline as agents cycle back in years to come.

The program was able to maintained the ODA biocontrol position despite state budget cuts; most of the project funding was supported through federal funds during 2020. The Noxious Weed Control Program's longstanding biocontrol entomologist position was retained for year three of service by Joel Price allowing 100% focus of the FTE to remain on biological control of noxious weeds.

ACCOMPLISHMENTS FOR 2020

The Noxious Weed Control Program's longstanding biocontrol entomologist position was retained for year three of service by Joel Price.

- Cleaned gorse thrips colony of contamination by predator thrips
- Built weed seed supply for greenhouse agent rearing
- Released new agent on gorse and provided to California
- Released new agent on knotweed and provided to Washington
- Acquired two new growth chambers for lab rearing
- Maintained 6 thrips and psyllid agent colonies overwinter
- Helped train new APHIS biocontrol addition staff
- Set-up biocontrol lab inside Hawthorne facility
- Conducted Russian knapweed wasp lab rearing parasitoid survey
- Provided Purple loosestrife agents to Washington and Idaho
- Collected nearly 1 million flea beetles for statewide distribution on leafy spurge
- Four "cold-hardy" Colorado puncturevine weevil releases conducted in Oregon
- Large collection of *Cyphocleonus* weevils in collaboration with a dozen USFS cooperators
- With APHIS-PPQ assistance, we expanded our use of the biocontrol ArcGIS Collector database on mobile device applications.
- In total, ODA entomologist conducted 5 collections, 28 releases, and 83 monitoring sites.

Table 1 - Total biocontrol activities statewide, including all collaborators.

Year	Collections	Releases	Monitoring events
2020	20	135	122
2019	21	25	82

In collaboration with the Idaho Biocontrol Task Force using the Survey123 app, we expanded our permanent Standardized Impact Monitoring Protocol (SIMP) transects from 3 in 2017, 10 in 2018, 21 in 2019, to 27 in 2020. Permanent monitoring was primarily focused on Russian knapweed (4), Yellow starthistle (6) and Canada thistle (14).

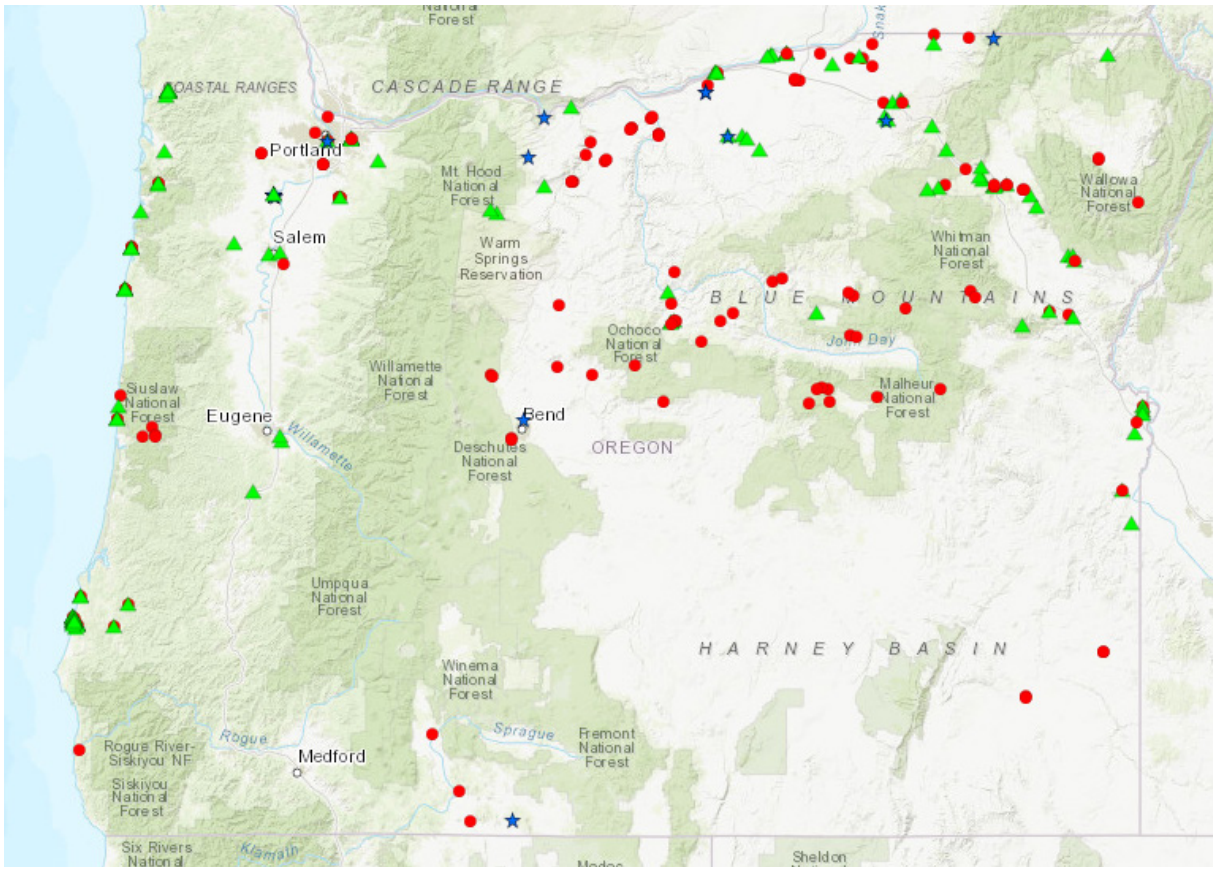
We continued extensive collaboration with USDA-APHIS-PPQ partners in Portland and Union to cover the state. By so doing we were able to continue to grow our program activities while making days spent in travel below 2018 levels, thus increasing efficiency. Field work began April 8th and continued till October 19th.

Table 2 - Field work summary for ODA biocontrol entomologist activities.

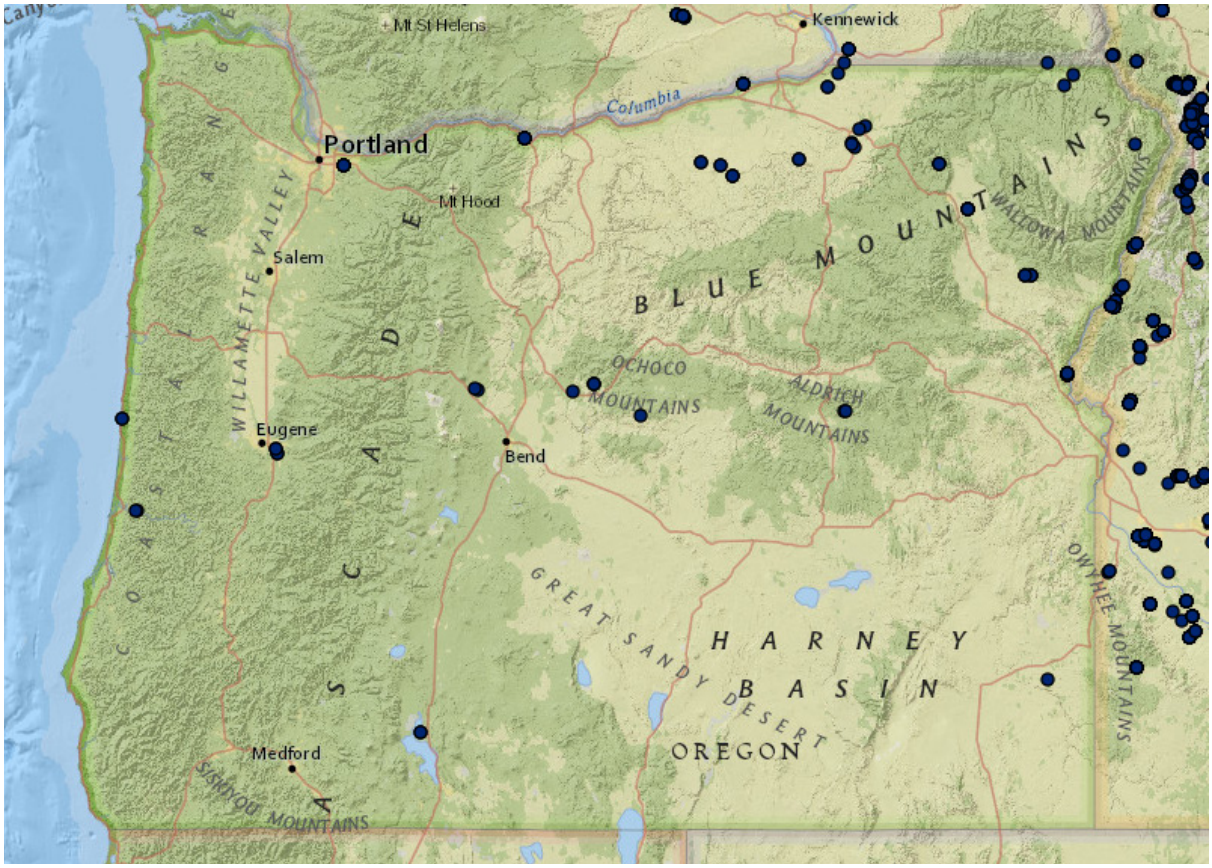
Year	Sites	Bio species no.	Counties (of 36)	Field Days
2018	41	23	16	36
2019	58	23	19	32
2020	54	15	17	35

Table 3 - Oregon biocontrol collection and releases conducted in 2020 solely or collaboratively through the Noxious Weed Control Program biocontrol entomologist.

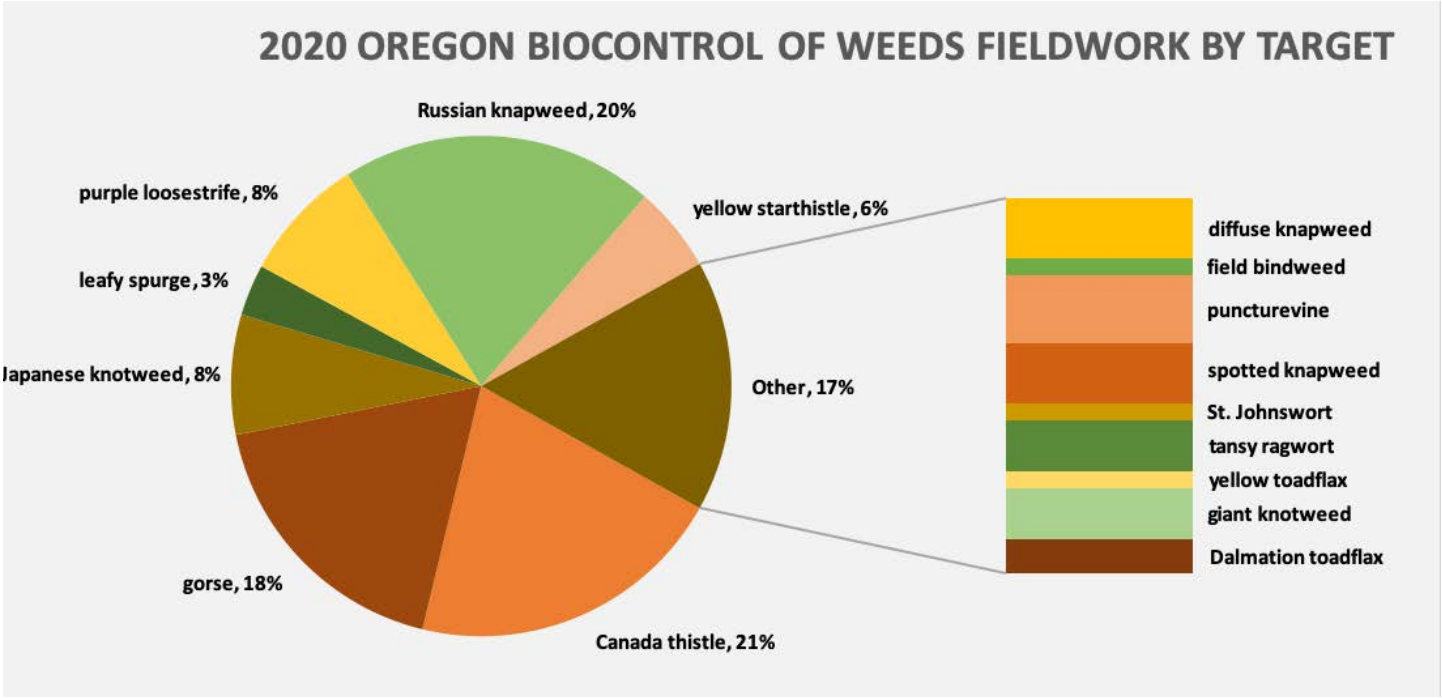
Targets	Species	Adults	Releases	Beneficiaries
Canada thistle	Puccinia punctiformis	1014 grams	36	Wheeler Co, ODFW, State Parks, WWNF, Deschutes Land Trust, Columbia Children's Arboretum, Owyhee Irrigation Dist., Malheur NF, TNC, Portland Parks
Dalmatian toadflax	Mecinus janthiniformis	2,000	4	OPRD, Baker Co.
Diffuse knapweed	Cyphocleonus achates	225	5	Sherman SWCD
Giant knotweed	Aphalara itadori	2100	3	Coos Co., Tillamook Co.
Gorse	Sericothrips staphylinus	3725	16	Bandon Dunes Golf, City of Bandon, USFS, ORPD, Lincoln Co.
Japanese knotweed	Aphalara itadori	9080	8	Coos Co., USFS, Clackamas Co.
Leafy spurge	Aphthona lacertosa	480,000	4	John Day NF, Monument SWCD, Baker Co., Union Co.
Puncturevine	Microlarinus lareynii	400	4	Owyhee Irrigation Dist., Umatilla Co., Sherman Co.
Purple loosestrife	Galerucella spp.	18,550	9	ODOT, USFWS, Portland Parks, Curry Co., Lane Co., Washington and Idaho
Russian knapweed	Aulacidea acroptilonica	7895	32	Morrow SWCD, Umatilla Co., Lower Deschutes CWMA, Jordan Valley CWMA, Sherman SWCD, Owyhee Irrigation Dist., Baker Co.
Spotted knapweed	Cyphocleonus achates	416	5	Deschutes NF
Yellow starthistle	Larinus curtus	3300	5	Union Co., Baker Co., Grant Co.
Targets	**Species**	**Adults**	**Releases**	**Beneficiaries**
2020 totals				
12	13	528,705	131	33
2019 totals				
9	11	900,472	63	29
2018 totals				
9	10	26,600	54	28



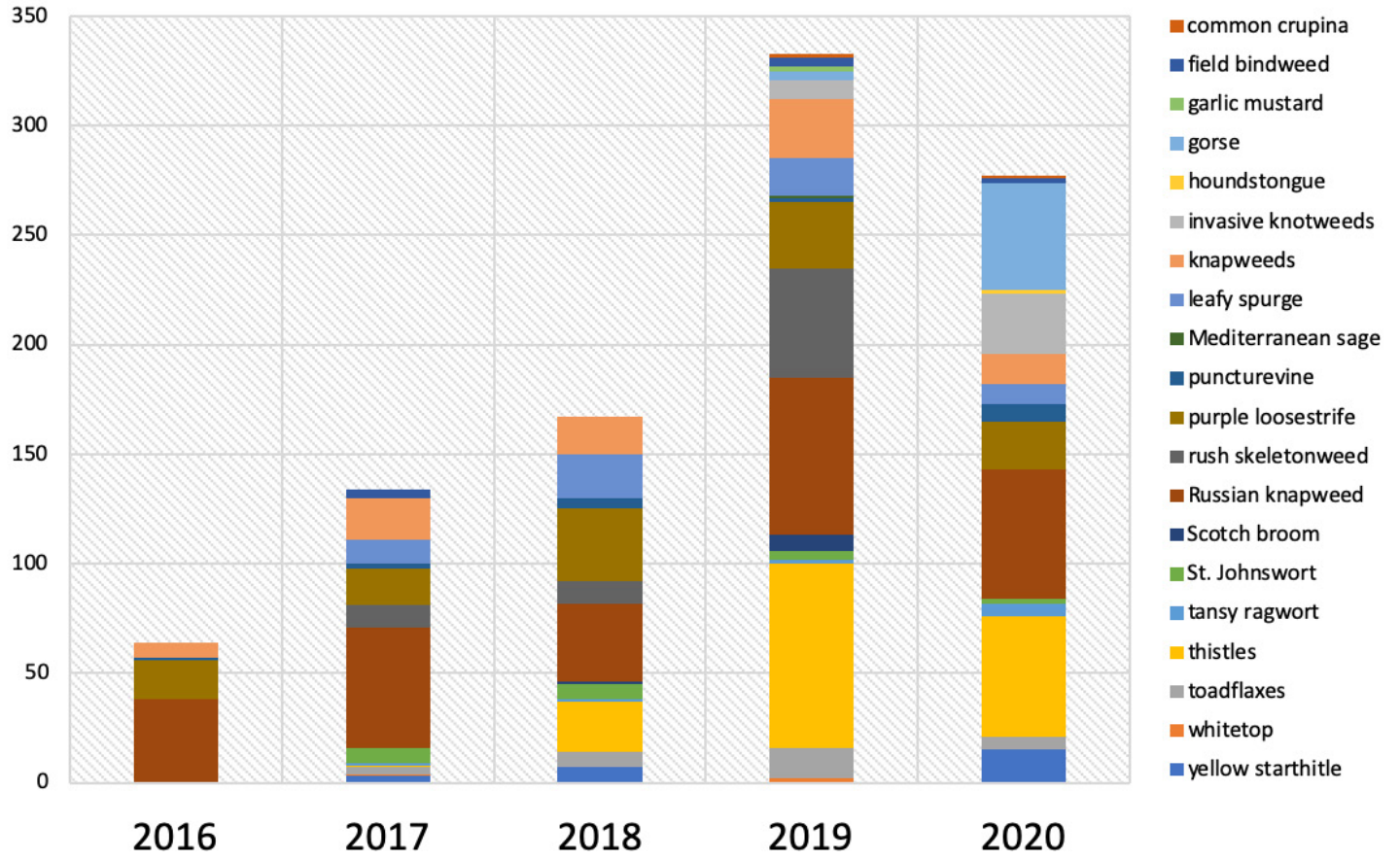
All 2020 biocontrol activities statewide. Collections (stars), releases (circles), and monitoring sites (triangles).



2020 long-term biocontrol study sites in Oregon.



Combined ODA/PPQ 2020 biocontrol activity focus by target weed.



Level of work invested (collections, releases, monitoring) in biocontrol statewide (collaborators and ODA combined) over the last 5 years by target species.

WEED SPECIES UPDATES

Canada thistle, Cirsium arvense – B(T)

Puccinia punctiformis is a naturalized rust fungus specific to Canada thistle. It was approved for redistribution by USDA-APHIS in 2017 and a USFS BCIP grant aided Colorado in supplying inoculum to many western states, including Oregon in 2018-2020. Work to establish permanent field nurseries and monitoring plots began in 2018. So far, most sites have yet to show signs of infection and the few sites we have monitored consistently for three years are showing no signs of slowing down, although travel restrictions prevented proper monitoring of most sites in 2020 when we would expect to notice results. We have yet to gain access to the Coos organic farm outbreak, find collectable timing for Tillamook Co., and our contact retired for the Lane county site (the only one we have collected from in the state). A collectable amount of rust was discovered in the John Day area by Jessica Brunson (USFS) and will be used for local movement of inoculum. The current strategy is to wait for our treated sites to start exhibiting symptoms and become collectable so we get over the supply bottleneck in Oregon. We are collaborating with Dr. Steve Young at Utah State University to discover more about the rust. We provided his graduate student with 10 or so research plots statewide.

Joel Price (Biocontrol Entomologist) with a systemically infected Canada thistle plant.

Gorse, Ulex europaeus – B(T)

In 2008, testing of gorse thrips *Sericothrips staphylinus*, began at the OSU quarantine facility. Insects were collected near Hilo, HI and brought to Oregon. The project is being coordinated by Dr. Fritzi Grevstad, OSU, and is primarily funded by the US Forest Service. The first releases were conducted in Oregon this year from the four cage colonies at the ODA greenhouses and OSU quarantine. Sites were primarily selected in and around Bandon, OR for having a multitude of host plant sites, all within easy monitoring distance. The seven sites were monitored in June, July, and August. Thrips recovery was recorded for every major study site and during 22 of the 32 release location checks. 186 adult thrips were recovered across all sites. Thrips were even recovered at the Lincoln county beachfront site completely exposed to the oceanfront where salt, wind, and cold were a concern.

Vials with 100 gorse thrips in each, ready for release from ODA labs to Bandon, OR.

Japanese knotweed, Fallopia japonica – B

Aphalara itadori, at the OSU quarantine lab kept by Dr. Fritzi Grevstad were permitted for release in 2020. In total 34 k psyllids were released at 27 sites in 8 states. Oregon had nine study sites. Adults released into sleeve cages lasted for many days and laid several hundred eggs on the leaves that were sleeved. Eggs quickly disappeared after sleeves were removed and few if any nymphs were ever recorded at the sites. Each site was monitored six times and adult totals observed in the patch went from roughly 30 in early May, 10 in late May, 1 in June, and none in July or beyond. While it is reassuring that next generation psyllids were observed and timing of psyllid phenology was nearly as the model predicted, the amount of predators observed on knotweed leaves at field sites were concerning. Most sampled predators were *Anystis spp.* mites. 2021 strategy will be to increase release sizes and release earlier in the spring when knotweed is soft and predators may be yet to peak.

From left, Fritzi Grevstad (OSU) and Samuel Leininger (Clackamas SWCD) releasing adult psyllids into sleeve cages at a Clackamas county park.

Leafy spurge flea beetle collection location in Klamath Co., 2008 left and 2020 right.

Leafy spurge, *Euphorbia esula* – B(T)

Leafy spurge biocontrol experienced a third consecutive banner year in Klamath county. With the help of the BLM and ODA staff members, nearly a half-million *Apthona lacertosa* flea beetles were collected at Sacchi Ranch near Malin, OR. Beetles were introduced to the collection site in 2008 and after years of patience are now collectable and having significant impact and hollowing out a nearly 70-acre spurge patch. Collection may be slowing as spurge is less abundant. Landowner reported significantly increased grazing ability and never thought he would get his land back to being productive, till now.

Puncturevine, *Tribulus terrestris* – B(T)

The seed weevil, *Microlarinus lareynii* was introduced to Oregon in 1983. Weevils were found established throughout the Rogue Valley in Jackson County 2015 and Irrigon, Umatilla County. The weevils do not readily overwinter in other areas in Oregon, despite numerous introductions. The original weevils were imported from Colorado at a time when populations there were thought to seasonally migrate up from warmer climes in New Mexico and Texas. Today, overwintering populations have established throughout Colorado and are thought to be a "cold-hardy" strain. We imported 500 "Cold-hardy CO" weevils to Malheur, Grant, and Umatilla counties in 2018. Three sites were monitored in 2019 and 2020 but recovery of the 2018 releases have yet to be confirmed. Despite harsh droughts reducing collectable plants in Colorado, we were able to receive and release 400 weevils in 2020.

Purple loosestrife, *Lythrum salicaria* – B(T)

8,400 *Galerucella* beetles were collected from Oaks Bottom (Sellwood-Portland) in cooperation with our APHIS-PPQ and Nez Perce-ID partners for release in Idaho counties. Significant impact to loosestrife is being observed with no "overflow" feeding on non-target plants. An additional 7,550 beetles were collected in St. Paul-Horseshoe Lake with WSU staff for release in Washington.

Loosestrife crew from left: Joel Price (ODA), Paul Brusven (NPBCC), and Mariah Davis (USDA-APHIS-PPQ) at Oaks Bottom collection site.

Russian knapweed, *Acroptilon repens* – B(T)

Greenhouse rearing of *Jaapiella ivannikovi* was abandoned due to lack of agent persistence overwinter without proper lighting for active plant bolting. Over 10k *Aulacidea acroptilonica* galls were easily collected in 2020 at the Rhea lane insectary in Morrow county. 2019 galls were successfully overwintered in Salem ODA walk-in fridge and reared out as adults for spring shipments. This allowed a proper count of agents going out, preventing overwintering losses to climactic of rodent damage, and surveying for parasitoid diversity and abundance. We observed significant declines in Russian knapweed at Succor Creek (Malheur Co.) and Priest Hole (Grant Co.). Both midges and wasp galls were prolific at both sites and knapweed densities were half of what was observed in 2014.

Russian knapweed reduction at Priest Hole. 2019 (top) knapweed heavily galled along two-track road. 2020 (bottom) absence of plants at the same location.

Mike Crumrine (Deschutes NF) instructing on sweep netting methodology.

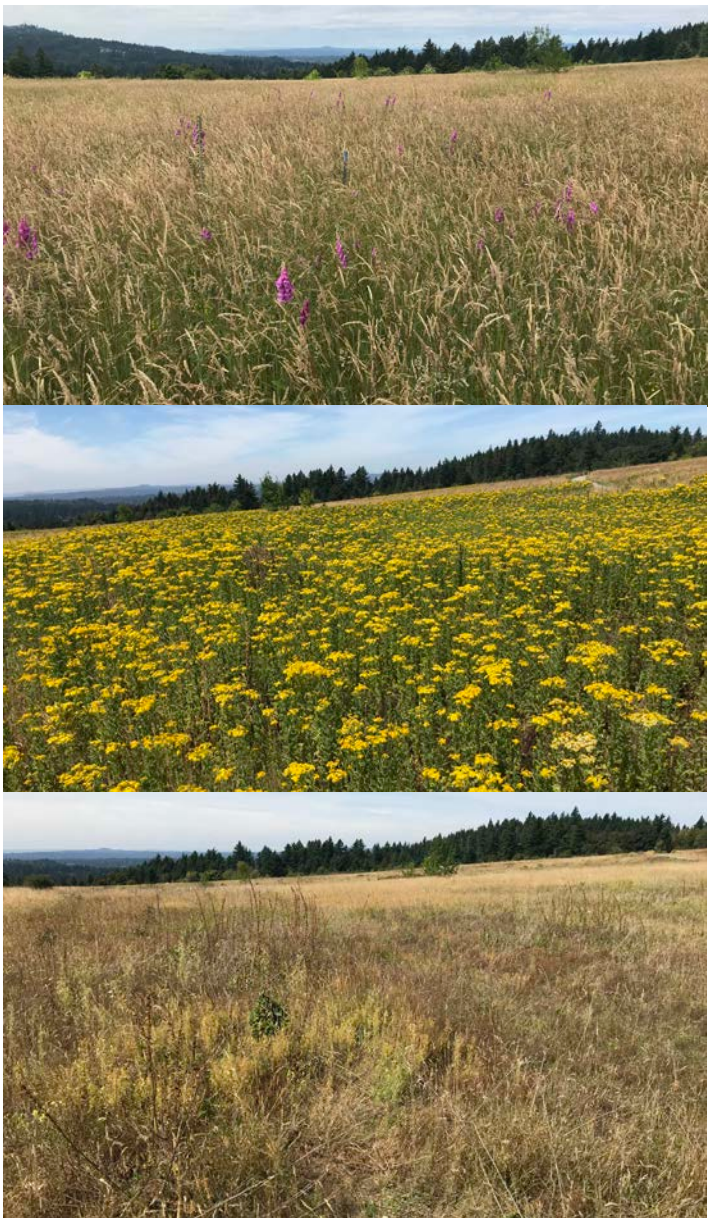
Spotted knapweed, Centaurea stoebe - B(T)

Mike Crumrine (Deschutes NF) helped facilitate the use of USFS botanists to collect 685 adult weevils September 1st, 2020. Weevils were released in Deschutes, Crook, and Grant counties. Efforts should be made in future years to visit release locations and determine agent establishment outside the Bend, OR area.

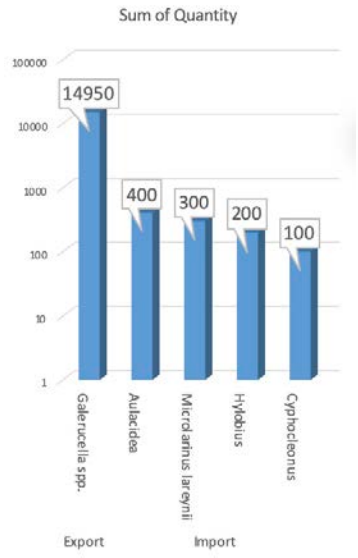
100 adult Cyphocleonus weevils ready for shipment.

Tansy ragwort, Jacobaea vulgaris – B(T)

Monitoring work continued from 2018 to 2020 at SIMP transects in Multnomah county after Powell Butte experienced a significant outbreak of tansy and concerned Portland Parks employees began mowing, spraying, and control experimental plots. *Tyria jacobaeae* moth adults were observed in decent numbers during spring 2020, as were *Longitarsus jacobaeae* flea beetles. However, with year-by-year decrease in tansy digging by local land-owners and COVID lockdowns halting roadside vegetation crews for some time during spring, tansy exploded in many of the most visible areas around the Willamette Valley where humans would otherwise have maintained control on a typical year. There was an equal explosion of phone calls and emails from concerned citizens. New monitoring photo points were established and Powell Butte remained cleaner than the previous two years.



Powell Butte, Portland, OR tansy ragwort in 2018 (top), 2019 (middle), and 2020 (bottom).



Biocontrol interstate movement in 2020.

Northwest Region

By Beth Myers-Shenai & Glenn Miller

Weed control projects in 2020 faced a difficult uphill battle to proceed against the threats imposed by the Covid 19 virus, financial limitations, highly dangerous fire conditions and finally the fires themselves. Many target species were simply not attended to by the weed control program. Fortunately, cooperators stepped in to survey and treat.

SPECIAL PROJECTS: CONTROL OF "A" RATED SPECIES

Garden Yellow Loosestrife (Lysimachia vulgaris) Willamette River – Wheatland Bar

A(T)-rated. Cost center: lottery. No funds available

Survey and treatment conducted by Yamhill Soil and Water Conservation District, but they had no previous experience at surveying for the plant and were not confident they found it all.

Giant Hogweed, (Heracleum mantegazzianum)

A(T)-rated. Cost Center: Lottery. No funds available. Unable to treat. Some local treatments conducted by Portland area cooperators.

Mouse-ear Hawkweed (Pilosella pilosella) Gopher Valley, Yamhill County

A(T)-rated. Cost center: Lottery. Survey and project coordination with Yamhill SWCD only.

Oblong Spurge (Euphorbia oblongata) Salem, greater Willamette Valley

A(T)-rated. Cost Center: Lottery. Treated populations in Salem on Oregon State Lands and completed follow-up treatments in the Corvallis area. Assisted the Benton SWCD with one half day of survey at a new residential site in North Corvallis and Benton SWCD completed treatment at a later date.

Laura Brown with Benton SWCD helping ODA staff delimit a newly-found site of oblong spurge in the county. The site was found through the SWCD's outreach efforts funded through an Oregon State Weed Board grant.

Paterson's Curse, (Echium plantagineum) Lebanon, Oregon

A(T)-rated. Cost Center: Lottery. Monitoring of Lebanon sites. 3 plants only. Pulled.

Yellow Floating Heart (Nymphoides peltata) Willamette River

A(T)-rated. Cost Center: Lottery. One day of treatment on Willamette River in cooperation with State Parks employee at old Long Tom River outlet. Smoke prevented the treatment of the Dodson Slough population near Eugene. Monitoring confirmed the remaining population was reduced by >95% from original distribution.

Matgrass, (Nardus stricta) Clatsop County

A(T)-rated. Cost center: Lottery. No funds available. The isolated population in Clatsop County was monitored and treated by cooperators in the county. Funding restrictions prevented ODA involvement.

Goats rue (Galega officinialis), Portland region

Cost center: Lottery, no funds available. Survey and treatment of populations in the Portland area were conducted by local cooperators.

US ARMY CORPS OF ENGINEERS

SOUTH VALLEY PROJECTS
COST CENTER: US ARMY CORPS

Meadow Knapweed (Centaurea pratensis) – B-rated, Fern Ridge wetlands & Cottage Grove Reservoir

The Army Corp of Engineers owns and manages significant acres of natural area land adjacent to flood control reservoirs in the South Willamette Valley. These land holdings contain populations of rare plants and animals such as Kincaid's lupine and the Fender's blue butterfly that feeds on it. Meadow knapweed is a pernicious weed that threatens the lupine habitat through competition for available space and resources. ODA staff worked with the Army Corp to spot treat knapweed populations to reduce their density primarily at Fern Ridge and Cottage Grove Reservoirs.

Funding for treatments was an issue this year. There was no funding available to treat all projects. Treated sites for 2020 include:

- 0.75 gallons applied to 12 gross acres, 0.09 acres net, at Cottage Grove Reservoir
- 2.75 gallons applied to 50 gross acres, 0.17 acres net at Green Oaks wetlands Fern Ridge Res.
- 3 gallons applied to 15 gross acres at the Amazon creek outlet, Fern Ridge.

US FOREST SERVICE PROJECTS

MT. HOOD NATIONAL FOREST (MHNF) COST CENTER: USFS-MHNF

Armenian Blackberry (Rubus armeniacus): B-rated

Diffuse Knapweed (Centaurea diffusa): B-rated

False Brome (Brachypodium sylvaticum): B-rated

Garlic Mustard (Alliaria petiolata): B (T)-rated

Japanese Knotweed (Fallopia japonica): B-rated

Meadow Hawkweed (Pilosella caespitosum): B(T)-rated

Orange Hawkweed (Pilosella aurantiacum): A(T)-rated

Spotted Knapweed (Centaurea stoebe): B(T)-rated

Sulfur Cinquefoil (Potentilla recta): B-rated

Mt. Hood National Forest encompasses a varied landscape that includes wet, densely vegetated western slopes, dry open forest eastern slopes, lush river valleys, wilderness meadows and part of the Columbia River Gorge. Invasive plant populations on Mt. Hood National Forest are generally small, localized infestations with the exception of meadow and orange hawkweeds in the Lolo Pass area and spotted knapweed on the Hood River and Barlow Ranger Districts. Much work is done each year to prevent the spread of small, dispersed sites and to keep vector areas like roadsides and trailheads clear of noxious weeds.

CLACKAMAS AND ZIG ZAG RANGER DISTRICTS

Hawkweeds on the Lolo Pass Bonneville Powerline corridor continued to be targeted with ODA staff, USFS staff, private contractors, Portland Water Bureau and other groups. In 2020 surveys and treatments were extended both north and south along the corridor to contain further spread. Total plant numbers are a fraction of initial populations and will continue to be suppressed.

ODA's George Petty discovers a small outlier patch of meadow hawkweed at the western end of the Lolo Pass powerline corridor while surveying a new area of the site.

Orange hawkweed was also treated in a meadow along the Burnt Lake trail in the Zig Zag Wilderness in cooperation with Clackamas SWCD. Thanks to extensive surveys the previous year by Clackamas SWCD contractors, a few more isolated plants were found farther up in the meadow and were added in to this years' treatment. Counts are down considerably from original population levels. Native forbs and shrubs continue to repopulate the sites, contributing significant competition to the hawkweed and largely preventing seed escape from under the canopy.

Courtney Gattuso with Clackamas SWCD hunts for orange hawkweed plants in a Mt. Hood Wilderness meadow. The SWCD has been a key partner in helping ODA with suppression efforts here and preventing the spread to other wilderness areas.

Highway 26 was surveyed and treated from the Warm Springs boundary to just above Rhododendron. Most sites were spotted knapweed, with scattered diffuse and meadow (or brown) knapweeds.

All known Japanese knotweed sites in the Timber Lake area were surveyed and treated, and no new sites were found this year. Plant density was reduced 90 to 100% from original numbers.

Most false brome sites in the Bagby Springs area were treated by Clackamas SWCD crews, however new small sites were found along both the 63 and 46 roads.

The 46 road sulfur cinquefoil sites were surveyed and treated while in flower, which led to the rediscovery of an old site above the known area on the 46 road. This had been found and treated several years previously, but not mapped accurately or found again until now. New sites were also located along the 46 road as far down as the 63 junction. The known areas are greatly reduced from original numbers, with scattered plants rather than dense patches.

No Himalayan blackberry sites were treated due to fire closures.

- Clackamas: 45 gallons of herbicide applied over 2,863 gross acres
- Zig Zag: 572 Gallons applied over 1,948 gross acres (primarily Lolo Pass)

HOOD RIVER RANGER DISTRICT

All spotted and diffuse knapweed sites (46, 4635, 63, 70, 7010, 7010-170, 42 and 4210 roads) were checked and treated this year, and plant numbers were greatly reduced at all sites. The only exception is the east end of the 42 road from Warm Springs Indian Reservation to Hwy 26, which was not available due to fire closure.

All known sites in the Wahtum Lake, Rager Quarry and 13 road areas were surveyed and treated this year, with the exception of the closed portion of the 13 road. Plant numbers are down, but these areas have extensive seed banks and new invasion from the Hood River Valley is ongoing. Much of this work was performed late in the season, which led to the discovery and treatment of new small patches of meadow knapweed widely scattered mostly on the 13 and 1330 roads.

Meadow and spotted knapweed sites along the 16, 1610 and 1630 roads were surveyed and treated. Numbers and density are down to scattered plants. The 16 road through to the 18 road was examined, and only a few plants were found outside of the known sites.

Highway 35 was treated from the Hwy 26 junction to the Sherwood campground. Most of the larger sites were treated but some may have been missed due to traffic, construction etc.

A few meadow hawkweed patches are also being annually monitored and treated on Road 18 near Lolo Pass, and a new patch of false brome, an invasive grass species not common in Hood River County, was found in and treated in 2020 in the BPA corridor immediately north of Lolo pass. No garlic mustard treatments were conducted this year due to budget constraints. The Hood River SWCD and Forest Service filled in for 2020.

104 gallons herbicide applied over 1,324 gross acres.

WILLAMETTE NATIONAL FOREST COST CENTER: USFS-WNF

False Brome (Brachypodium sylvaticum): B-rated

Spotted Knapweed (Centaurea stoebe): B(T)-rated

Shining geranium (Geranium lucidum) B-rated

Yellow Archangel (Lamiastrum galeobdolon) B-rated

Damatian toadflax (Linaria dalmatica) B(T)-rated

Japanese knotweed (Fallopia japonica) B-rated

Herb Robert (Geranium robertianum) B-rated

High fire danger in August and the September wildfires cut short the treatment season significantly.

Primary targeted species continue to be roadside spotted knapweed and false brome, forest populations of false brome, and Dalmatian toadflax on the Willamette Pass.

Treatments utilized truck mounted sprayers, RTV mounted sprayers, and backpacks. In most treatment areas, weed populations are stable or reduced. Key management goals on this forest are to protect vulnerable areas like logging sites from new invasions, keep invaders out of pristine and sensitive habitats, and prevent further spread off-forest from well-traveled roads and trailheads.

The McKenzie fire torched many weed sites in the Blue River and Cougar Reservoir areas. It is not known if the impact of the fire will reduce or increase weed occurrence. Surveys will not commence until mid-spring due to road closures.

DETROIT RANGER DISTRICT

Plant numbers at nearly all ODA managed sites on the Detroit District declined over the last year. The focus for work on this district is still primarily small, dispersed sites of priority weeds, which helps prevent further spread on the district.

95 priority areas were treated in 2020 along Highway 22, Blowout Rd. 10, Straight Creek Rd. 11 and interior roads north of there, French Creek Rd. 2223 areas, Breitenbush Rd. 46, Woodpecker Ridge Rd. 040, and Marion Creek Rd. 2255.

False brome, spotted knapweed, shiny geranium, herb Robert, were all treated, but active sites of yellow archangel and Japanese knotweed on the district were unable to be treated this year because of fire activity in the area during the treatment time.

48 gallons herbicide applied over 369 gross acres.

MCKENZIE RANGER DISTRICT

2020 treatments were significantly impacted by fire and hot dry conditions. Downed trees are still an issue in some areas. Treated areas included Horse Creek, East Fork McKenzie, Road 1501 near Blue River Reservoir, Road 19, 15, Foley Ridge Rd, FS 2643 and spurs, Highway 126, Deer Creek Rd. Road 2654 and spur, Highway 20, and Lost Lake. Hwy 20 knapweed plant counts remain very low, though the Lost Lake campground near the highway has a persistent population. Trailbridge and Carmen reservoir

recreation areas and roadsides received treatments as the public is restricted from entry, reducing conflicts. Spotted knapweed has been very prevalent at those sites.

Priority species were spotted knapweed and false brome.

129 gallons herbicide applied throughout district

MIDDLE FORK RANGER DISTRICT

Most roads had been cleared of downed trees but closures of some treatable locations due to logging and downed trees still persist. Treatable areas included: Fall Creek road 18 and spurs, Winberry Creek road 1802 and spurs, the upper half of Road 19 to Box Canyon and Highway 58. Priority species included false brome, spotted knapweed, and Dalmatian toadflax.

ODA Blackberry treatments did not occur this year due to severe smoke and fire conditions late in the summer.

251 herbicide gallons applied throughout district.

SWEET HOME RANGER DISTRICT

Treatable areas included Moose Mountain and Moose Creek roads. Highway 20. False brome was the primary target followed by spotted knapweed. Fall blackberry treatments did not occur due to smoke and extreme fire danger.

66 herbicide gallons applied throughout district.

HAGG LAKE

Cost Center: United States Bureau of Reclamation - Henry Hagg Lake

Armenian Blackberry (Rubus armeniacus): B-rated

Scotch Broom (Cytisus scoparius): B-rated

Noxious Weed Program staff completed a one-day treatment of Armenian blackberry, and scotch broom on two parcels adjacent to Henry Hagg Lake in Washington County. These parcels contain future core habitat for Kincaid's lupine introduction and its associated threatened and endangered Fender's blue butterfly.

This is a collaborative project between the Noxious Weed Control Program, Bureau of Reclamation, US Fish and Wildlife Service, and Washington County Parks to reopen prairie habitat. Over several years, large monocultures of blackberry and Scotch broom have been targeted. Following herbicide treatments, large mowing equipment mulched the dead canes. This work has resulted in a transformed landscape that is now allowing the lupine population to greatly expand its population area. Where once weedy shrubs dominated, grassland now thrives.

70 gallons herbicide applied to two parcels.

Southwest Region

By Carri Pirosko

Reduced 2020 Capacity

As a result of shutdowns due to the COVID-19 Pandemic, Invasive Noxious Weed Control Program staff prioritized A-rated noxious weeds. Involvement in several A-rated weed projects was reduced, namely Lottery funded projects: distaff thistle, Paterson's curse, and private yellow floating heart ponds. Staff was unable to work on a broad scope of B-rated weed projects in 2020, nor was staff able to engage at a full capacity in outreach and partner meetings.

STATE FUNDED LOTTERY PROJECTS

Spartina densiflora, Coos County

Cost Center: Lottery

A-listed cordgrasses are a threat to salt water marshes and estuaries in Oregon. They can alter hydrology, biogeochemistry, and food webs of invaded areas, which can be detrimental to recreation, wildlife, and commercial resources. Estuarine native plant habitats and shell fisheries in both Washington and California have been dramatically impacted by the invasion of cordgrasses.

A-rated dense flowered cordgrass in Coos Bay.

Both smooth cordgrass (*Spartina alterniflora*) and dense flowered cordgrass (*Spartina densiflora*) have been previously detected in Coos Bay. Smooth cordgrass found east of Charleston Marina in 1995 was manually removed over the course of several years. No regrowth has been observed since 2007. Six clones of dense flowered cordgrass were observed and manually removed from the Jordan Cove area in 2013. In 2019, thirty small, *S. densiflora* clones were found along the shoreline near Jordan Cove, the same area where *S. densiflora* was found and removed during 2013. In 2020, Noxious Weed Program staff, in collaboration with Portland State University and Roseburg Forest Products, conducted early detection Spartina surveys in portions of Coos Bay, including Jordan Cove. Thirty-six, small, *S. densiflora* clones were found and removed

along the shoreline near Jordan Cove, the same area where *S. densiflora* was found and removed in 2013 and 2019.

Woolly Distaff Thistle, Douglas, Josephine, Curry Counties

A-rated woolly distaff thistle in Douglas County.

Woolly distaff thistle, *Carthamus lanatus*, was discovered in Oregon in 1987. While this A-rated noxious weed is known to infest vast acreages in California, it is only found in three Oregon counties. It is important to continue to protect Oregon's range, pasture, and overall watershed health from further invasion by this non-native thistle. Elimination of seed production and seeds in the soil are both key in efforts to eradicate populations of this annual thistle. This long-standing project involves the control, survey, and monitoring of all known infestations of distaff thistle. At a minimum, each site is worked three times each year. The Invasive Noxious Weed Control Program continues to provide supervision and coordination for this project.

- 99% decrease in distaff thistle since program began in 1987
- 2.48 net acres treated over 4,005 gross acres surveyed in 2020

Paterson's Curse, Douglas County

Paterson's curse is an A-listed weed species that threatens oak woodlands, native prairies, and dry upland slopes. Despite a beautiful appearance, this invasive weed is truly a curse in that it is toxic to livestock and has the potential to infest thousands of acres, as demonstrated in Australia. An infestation of Paterson's curse was found in two ownerships southeast of Dillard in Douglas County in 2004. This project is a collaboration between the Douglas SWCD, the Invasive Noxious Weed Control Program, Roseburg Forest Products, the Cow Creek Band of the Umpqua Tribe, and private landowners.

Only 1.1 net acres of Paterson's curse plants were detected and treated this season.

This project has achieved a 99% decrease in plants since first detected in 2004.

A-rated Paterson's curse treatment in Douglas County.

Yellow Floating Heart Private Ponds

Yellow floating heart, *Nymphoides peltata*, was introduced into the United States as an ornamental pond plant. Prior to being declared a noxious weed in Oregon, yellow floating heart was sold in the aquatic plant trade. Although it is an attractive plant for water gardens, if introduced into the wild, yellow floating heart can rapidly colonize lakes, ponds, and slow-moving streams, engulfing them in dense mats of vegetation.

No plants have been detected for five years in ponds at a golf course in Roseburg and therefore these ponds can be declared eradicated.

No plants have been found for four years at Little Squaw Lake in Jackson County.

A private pond near Elkton had a reemergence of a small pocket of plants this season, while a few tiny patches remain in a private pond near Kellogg. Only a handful of plants were found at a pond near Melrose.

One new pond was detected in 2020 in Rogue River. The pond is slated to be dredged in the fall and will be inspected and any remaining fragments treated by ODA next season.

An A-rated yellow floating heart pond officially declared eradicated in Douglas County.

See table below for location and status of yellow floating heart treatments in southwest Oregon, ponds listed from top to bottom in order detected, 2009–2020.

County	Location, Land use	Years Treated	Population Status/ Treatment Method
Jackson (Rogue River-Siskiyou NF)	Little Squaw Lake, USFS	7	NO plants found for 4 years/ manual & mechanical only
Douglas	Roseburg golf course, private	2	ERADICATED
NO plants found for 5 years/ herbicide			
Douglas	Kellogg, private	7	99% reduction/ herbicide
Douglas	Elkton, private	5	99% reduction/ herbicide
Douglas (Umpqua NF)	Willow Sump, USFS	6	99% reduction/ herbicide
Douglas	Melrose, private	4	Only handful of plants/ herbicide year 1 then switched to manual in year 2
Douglas (Umpqua NF)	Beaver Pond, USFS	3	75% reduction/ herbicide
Jackson	Rogue River, private	1	Dredged by landowner

BIOLOGICAL CONTROL MONITORING AND RELEASES

Invasive Noxious Weed Control Program staff was able to assist with releases of leafy spurge agents, as well as collect yellow starthistle seed to be grown out as greenhouse host material for an anticipated release in Oregon next season.

Regional Education and Outreach Activities

Cost Center: BLM, USFS and Lottery

Noxious Weed Program staff gave 5 presentations this season.

- OSU 2020 Southern Oregon Pesticide Recertification Course (Central Point, Jackson County)
- Jackson/Josephine CWMA (Medford, Jackson County)
- Douglas County Weed Day (Roseburg, Douglas County)
- Gorse Action Group Training (Port Orford, Curry County)
- Oregon State Weed Board (Salem, Marion County)

COLLABORATIVE WORKING GROUPS

Cost Center: Lottery, BLM and USFS

Noxious Weed Staff served as the lead in the facilitation and coordination of several collaborative working groups in southern Oregon. Funds from the USFS and BLM helped promote collaborations across southwest Oregon.

Italian Thistle Collaborative

The Nature Conservancy and ODOT approached Invasive Noxious Weed Control Program staff about the spread of Italian thistle at Whetstone Preserve in White City, Jackson County. This B-rated noxious weed is very limited in distribution in Jackson County and threatens valued vernal pool habitat and agricultural lands should it continue to spread. In 2019, the implementation of a 5-Year Control Plan was initiated. ODA conducted treatments on 6 private properties adjacent to TNC and ODOT lands.

Prioritizing Italian thistle EDRR to protect forage for grazing animals in Jackson County.

Alyssum Working Group

The purpose of the yellowtuft *Alyssum* Working Group is to increase the effectiveness of land management agencies and the public responding to the A-rated noxious weed, *Alyssum*, in the Illinois Valley. The primary goal is to eradicate yellowtuft *Alyssum* in Oregon.

A-rated Alyssum eradication effort in Josephine County.

Full eradication will be reached when surveys confirm that no new *Alyssum* seed is produced from known sites and no new populations are detected for at least five years.

The Yellowtuft *Alyssum* Working Group will work together to:

- Promote awareness
- Coordinate survey and treatment with all affected landowners
- Guide prevention measures
- Foster volunteer opportunities

Controlling A-rated weeds to protect valued native plants in the Illinois Valley.

Gorse Action Group

Invasive Noxious Weed Control Program Staff continued to contribute to the GAG Coordinating Committee. Staff completed data collection at a control demonstration area just south of Bandon on Highway 101 with the goal of showing home and landowners the do's and don'ts of gorse control on the south coast. Staff assisted with several outreach events and meetings.

Gorse demonstration area plot on the south coast showing control methods.

ROGUE RIVER-SISKIYOU NATIONAL FOREST (NF)

Cost Center: USFS, BLM and Lottery

Alyssum: Illinois Valley, Josephine County

Funds from both the USFS Rogue River-Siskiyou NF and the Grants Pass/Medford/Cave Junction BLM Offices are instrumental in A-rated eradication efforts for *Alyssum*. *Alyssum murale* and *Alyssum corsicum* are perennial plants native to Eastern Europe. *Alyssum* species are unique in that they can hyper-accumulate metals extracted from the soil in leaf and shoot material.

Helicopter surveys to detect A-rated Alyssum in the Illinois Valley.

In the 1990s, a private company leased land from a handful of private and county landowners and planted *Alyssum* with prospects of phyto-mining nickel from high mineral Serpentine soils. The Illinois Valley contains the largest concentration of Serpentine soils in Oregon and supports a diverse and unique flora that is threatened by the spread of *Alyssum* species.

In less than ten years, *Alyssum* escaped planted areas to such an extent that, in 2009, the Oregon State Weed Board listed both species as A-rated noxious weeds.

The Invasive Noxious Weed Control Program, BLM, USFS, The Nature Conservancy, Cultural Ecological & Enhancement Network, private landowners, and citizen volunteers have collaborated in pushing *Alyssum* closer to our eradication goals. In 2020, a helicopter survey resulted in the detection of several new populations of *Alyssum* on the edges of known infested areas.

Knapweeds: Rogue River-Siskiyou National Forest

A limited number of spotted knapweed acres is known to occur in the Rogue River Watershed. Continual soil disturbance from wildfire, logging, road construction, and maintenance have resulted in expanded populations along Highways 140 and 230, and to a lesser extent, along Old Highway 99 and roads leading up to the Mt. Ashland Ski Resort. Noxious Weed Program staff and partners treated spotted knapweed

infestations on the east side of the Rogue River-Siskiyou National Forest and USFS crews control and monitor west side infestations:

This season, Noxious Weed Program staff put out 10 gallons of mix at spotted knapweed sites along Highway 140 and at a few sites off of adjacent side roads, on federal and private timber lands.

Noxious Weed Program staff put out 49 gallons of mix at spotted knapweed sites along Highway 230.

USFS STATE AND PRIVATE FORESTRY PROGRAM & BLM COOS BAY

Cost Center: USFS S&P, BLM and Lottery

Matgrass and biddy-biddy projects are a collaborative effort funded from both the State and Private Forestry Program and the BLM Coos Bay Office who are instrumental in theses A-rated weed eradication efforts.

Matgrass: Coos and Curry Counties

Matgrass, *Nardus stricta*, was discovered at several locations along the south coast in 2015. Matgrass, an invasive grass native to Eastern Europe, has no natural predators in Oregon, allowing it to form dense carpets or "mats" that limit the ability of native plants to establish and associated native fauna to thrive. Botanically, Blacklock Point in the State Parks Floras Lake Management Unit is noted for a unique pygmy forest and is one of the few remaining habitats for the federally endangered western bog lily.

On the south coast, matgrass seeds have spread via muddy boot treads of hikers recreating along the popular coastal trails leading out to Blacklock Point, as well as through contaminated mowing equipment used to maintain State Park lawns at two State Natural Areas: Devil's Kitchen and Bandon Wayside. An 99% reduction in matgrass cover has been realized at Devil's Kitchen and Bandon Wayside just south of Bandon in Coos County. Five years of treatment have been completed along trails at Blacklock Point in Curry County; Imazapyr herbicide is proving to be an effective tool. Treatments have been a collaborative effort between Oregon State Parks and Recreation Department, Oregon Department of Aviation, and ODA Noxious Weed Program staff.

Biddy-biddy: Coos County

Biddy-biddy, *Acaena novae-zelandieae*, a native to New Zealand, likely spread to the United States in the wool of imported sheep. Plants thrive in well drained soils and compete with native plants on coastal bluffs and in lawns where they form dense mats. High traffic locations in coastal habitats where some summer moisture occurs and frosts are infrequent are subject to invasion.

Controlling biddy-biddy, a threat to coastal habitats, at the Cape Blanco Lighthouse.

To date on the south coast, biddy-biddy is only known to occur in limited distribution along the coastline in Coos and Curry counties. Biddy-biddy targeted for treatment included populations at the Cape Blanco Lighthouse and USFS Ranger Station in Gold Beach.

Noxious Weed Program staff entered year five of a collaborative biddy-biddy control effort with Oregon Parks and Recreation Department and Curry Soil and Water Conservation District at Cape Blanco State Park; dramatic reductions have been realized with applications of Escort XP. Treatment of infested lawns at the USFS Ranger Station in Gold Beach are ongoing.

UMPQUA NATIONAL FOREST

Cost Center: USFS

Yellow Floating Heart

Two yellow floating heart infested water bodies occur on the Umpqua National Forest. Willow sump was detected in 2011 and has been treated by Noxious Weed Program staff for 6 years. Yellow floating heart was estimated to blanket 1.2 acres of this 2-acre pond when it was first detected. Percent cover has been reduced by 99% after six years of treatment.

A-rated yellow floating heart treatment assessment on the Umpqua NF in the time of COVID-19.

Beaver pond was detected in 2017 and was treated for the first time in 2018. Yellow floating heart was estimated to blanket 0.75 acres of this 3-acre pond before treatments this season. Percent cover has been reduced by 75% after three years of treatment. Staff were able to treat in August, but the Archie Creek fire pre-vented staff from making follow-up treatments in September.

Spotted Knapweed

Knapweed control is a high priority on the Umpqua NF in eastern Douglas County. The USFS intensively surveys and monitors both knapweed species across the forest. Noxious Weed Program staff assisted with herbicide treatments at larger sites, while the USFS manually removes smaller patches.

This federal-state partnership has resulted in a steady decline of spotted knapweed on the Umpqua NF. This season, 5.25 gallons of mix was used to treat knapweed sites along Highways 138 and 230 and other locations across the Diamond Lake Ranger District. Umpqua NF staff accompanied Invasive Noxious Weed Control Program staff and took detailed records as to the number of plants treated each season.

BLM GRANTS PASS/MEDFORD DISTRICT

Cost Center: BLM

Noxious Weed Control Program staff collaborates regularly with the Grants Pass/Medford BLM District staff and seasonal crews. The BLM Medford District support both BLM and USFS seasonal Weed and Botany Crews that contribute toward critical noxious weed work across the Medford/Grants Pass/Cave Junction region. This BLM District is also instrumental in funding Jackson and Josephine CWMA groups, resulting in valued B-rated weed control across the region. Last season, the Grants Pass BLM District staff began implementation of their Noxious Weed EA that allowed for some more effective and efficient weed control across the district.

Barbed Goatgrass: Josephine County

Barbed goatgrass, *Aegilops triuncialis*, is an annual that invades rangeland, grasslands, and oak woodlands. When mature, it is unpalatable to livestock and can cause injury to grazing animals. Goatgrass infestations can reduce forage quality and quantity. Because livestock tend to avoid this weedy grass, dense stands form that push out natives and desirable forage. While barbed goat-grass infests thousands of acres in California, only two populations are known to occur in Oregon. Both populations are found off of Highway 199 in Josephine County.

The Gold Canyon site was detected in 2017; this site was sprayed this season. Four sweeps were made across the Rough and Ready Creek area to manually remove and bag plants; only 1 bag of plants was removed this season. Several new, large sites were detected this season downstream from the Rough and Ready infestation on the Illinois River; federal crews hand-pulled and bagged plants at these locations. Staff scouted access points to these new populations for efficacy of treatments next season.

Many partner hands make light work in tackling A-rated barbed goatgrass along Rough and Ready Creek in Josephine County.

Support from both the Rogue River-Siskiyou National Forest, the Medford-Grants Pass BLM Office, and the locally based Cultural & Ecological Enhancement Network lend to the ongoing success of this eradication project.

BLM COOS BAY

Cost Center: BLM and State and Private Forestry

BLM Coos and State and Private Forestry

Funds from both the State and Private Forestry Program and the Coos BLM Office were instrumental in coastal work conducted on behalf of the Gorse Action Group and A-rated eradication efforts for matgrass and Cape ivy.

Gorse Action Group (GAG)

Dense populations of gorse create a fire hazard in populated coastal regions, destroy native coastal habitats, decrease land values, and degrade valued forage ground. The GAG is working to control and reduce the spread of gorse, minimize the impact of gorse to the coastal economy and natural resources, and provide a successful process to share with others facing gorse infestations. Gorse Action Group participants include: federal and state agencies, local and county governments, non-profit organizations, private industry, and private landowners. In 2017, GAG partners signed a Declaration of Cooperation at the end of a Regional Solutions process. The Noxious Weed Control Program committed to taking a leadership role in mapping development, EDRR, promoting effective gorse control methods, and biological control.

Matgrass

Matgrass is an invasive grass native to western Asia and southern Europe and has no natural predators in Oregon, allowing it to form dense carpets or "mats" that limit the ability of native plants to establish and associated native fauna to thrive. Three populations of matgrass are currently under control on the south coast, one site had no plants this year, while dramatic reductions were realized at two other locations.

Cape-Ivy

Cape-ivy, *Delairea odorata*, listed as an A-rated noxious weed in 2015, is considered to be invasive in California, Hawaii, and Australia. An extensive rhizome system makes it challenging to control and its vines form dense mats of vegetation that extend over trees and shrubs, killing understory plants and eventually trees vital to a functioning riparian system. Nineteen populations are known to occur between Ophir and Brookings. One new site was detected in Gold Beach bringing the total number of Cape-ivy sites in the state to 19. Noxious Weed Program staff collaborate with the Curry SWCD in survey, control, and monitoring of Cape-ivy populations in Curry County.

Less than twenty Cape ivy populations occur in the State of Oregon; all down in the SW coastal corner in Curry County.

North and South Central Region

By Tom Forney, Beth Myers-Shenai, and Rob Banks

NORTH AND SOUTH CENTRAL BUREAU OF LAND MANAGEMENT FUND PROJECTS

Lakeview BLM Noxious Weed Treatment Projects

Cost Center: BLM

The Warner Valley pepperweed project is a combined effort of ODA treatment crews from the south central and south east regions. The whole BLM Wetlands area has been designated as an Area of Critical Environmental Concern (ACEC).

In 2020 ODA was tasked with pepperweed and Canada thistle treatments in the eastern portion of the valley around Anderson Lake and on the canal banks near Hart Lake as well as the area southwest of Flagstaff Lake. Treatments were made by the ODA in July utilizing UTV handguns and UTV broadcast nozzles. ODA treated 115.25 net acres of perennial pepperweed, kochia, and Canada thistle.

- 115.25 acres treated over approximately 14,900 gross acres
- Approximately 5,000 acres surveyed

Klamath Falls Resource Area BLM Noxious Weed Treatment Projects

Cost Center: BLM

In 2020, two regions within the KFRA were the focus of treatment and survey of Bryant mountain and Gerber reservoir areas. Noxious weed species in the area include; Canada thistle, musk thistle, yellow starthistle, Scotch thistle, Mediterranean sage, Dalmatian toadflax, leafy spurge, diffuse knapweed, spotted knapweed, Russian knapweed, dyer's woad, perennial pepperweed, and St. Johnswort. In the boundaries of KFRA, ODA staff treated 19 net acres of noxious weeds and surveyed 15,000 total acres.

- 19 acres treated with herbicide
- Approximately 15,000 acres surveyed

Rob Banks on Bryant Mountain.

NORTH AND SOUTH CENTRAL BUREAU OF RECLAMATION FUND PROJECTS

Wickiup Reservoir

Cost Center: BOR

The Bureau of Reclamation (BOR) owns and manages several facilities throughout central Oregon. The Bend Field Office of the Pacific Northwest Region has contracted with the Noxious Weed Program and Crook County to address weed and vegetation problems in both eastern and western Oregon. Within the North Central region, the Noxious Weed Program conducts treatments at Wickiup Reservoirs. Treatments continued through the 2020 season for Spotted knapweed, St. Johnswort, perennial pepperweed, and mullein along the banks and earthen dams of Wickiup reservoir.

- 20.4 net acres treated over approximately 125 gross acres
- Approximately 6,300 gross acres surveyed

NORTH AND SOUTH CENTRAL FOREST SERVICE FUND PROJECTS

Deschutes and Ochoco National Forest

Cost Center: USFS

DESCHUTES NATIONAL FOREST

The Oregon Department of Agriculture has a long-standing partnership with the Deschutes National Forest to complete noxious weed control activities. Over the course of the 2020 season, ODA staff worked independently during the summer and fall, these efforts treated 199.75 net acres of noxious weeds over thousands of gross acres accross the two national forests. Treatments spanned from spotted knapweed in campgrounds, recreation areas, and open forest to roadside knapweed, St. Johnswort, and medusahead treatments and on to riparian treatments of ribbongrass, and yellow flag iris.

Treatments on the Deschutes National Forest took place on the Bend-Fort Rock, Crescent and Sisters Ranger Districts with much of the effort focused on spotted knapweed control treating 39.6 net acres were over ap-proximately 6,000 gross acres and surveying 10,000 acres.

The most notable and highest profile project in the region continues to be the treatment of ribbongrass and yellow flag iris on the Metolius River where treatments began in 2013 downstream of Camp Sherman, immediately adjacent to the Gorge Campground. Treatments in 2020 continued on nearly all known ribbongrass, reed canarygrass, and yellowflag iris in an 11 mile stretch from the mouth of the Metolius to Candle Creek at the border of the Warm Springs Reservation. In cooperation with the Friends of the Metolius, all of the safely accessible privately owned infestations were treated by ODA personnel as well.

Over three days, three ODA employees backpack-sprayed the 11 miles of river alongside four Forest Service applicators. Significant reductions of ribbongrass and yellowflag iris have been realized, and herbicide use for the project area decreased two-thirds from the treatments in 2019. All total 0.25 net acre treated over approximately 10,000 gross acres

Infestation of Ribbongrass on the Metolius River.

- 39.6 net acres were treated over approximately 16,000 gross acres
- Approximately 20,000 acres surveyed

OCHOCO NATIONAL FOREST

Over the course of the 2020 season, ODA staff spent three weeks treating medusahead rye in the Ochoco National Grasslands. ODA treated medusahead rye in the Round Butte, West Mountain View, and Schmocker Spring areas. Also treated spotted knapweed in the Monner Spring area.

- 159.9 net acre treated over approximately 5,000 gross acres
- Approximately 5,000 acres surveyed

Red line is the GPS track log from PSU's inventory of high risk habitats for flowering rush immediately below McNary dam.

Northeast Region

By Mark Porter

LOTTERY FUND PROJECTS

Flowering Rush, Butomus umbellatus, Morrow and Umatilla County

Cost Center: Previously lottery funded

Flowering Rush has been a top priority for ODA staff in northeast Oregon since 2014. It is an A-rated aquatic plant that has the ability to invade the shallow open water habitats of the Columbia River and convert them to monocultures of itself. This could have dire consequences for water quality and salmonid habitat. Flowering rush is in the very early stages of invasion in the Columbia and there is much that can be done to prevent these problems. ODA staff has co-led the Lower Columbia River Flowering Rush Work Group with the Washington State Department of Ecology. The Work Group is a collaborative forum for planning and facilitation of all aspects of flowering rush management in the Lower Columbia River. ODA staff has only been able to participate minimally in Work Group activities since March when the curtailment of lottery funding due to COVID-19 began. The Work Group met in a spring planning meeting but has not met since. The lack of communication, coordination and consistent implementation may cause this EDRR effort to fail.

Since 2014, ODA Noxious Weed Program staff had assisted the Army Corps of Engineers (ACE) and multiple partners to accomplish Early Detection and Rapid Response (EDRR) treatments for flowering rush in the Lower Columbia River. The ACE, Washington State Department of Ecology (WDOE), and the US Fish and Wildlife Service (USFWS) visited some sites in the McNary and John Day Pools and pulled plants when they found them. Some field activities took place this season, but they were not summarized or evaluated for efficacy and population trends, etc. What is known is summarized below.

Portland State University's Center for Lakes and Reservoirs (PSU) used Oregon State Weed Board (OSWB) grant funds to complete an inventory of high risk areas on the Oregon side of the Columbia River between McNary Dam and Cascade Locks. No flowering rush was found. Staff from the USFWS visited and pulled any flowering rush plants at all known sites within the McNary and Umatilla refuge boundaries. All known sites on the refuges were visited and no new sites of flowering rush were found. Annual hand pulling seems to be lowering the number of plants at these small sites. ACE staff worked to survey and pull weeds at some of the sites on the Washington side of the lower McNary Pool. No flowering rush treatment efforts occurred in the John Day Pool, this is particularly disturbing because this is the leading edge of the infestation and the sites are very few and very small. No work was completed in the reach of the Columbia River below Bonneville Dam.

USFWS McNary Wildlife Refuge Manager Keely Lopez shows off her trophy flowering rush plants from EDRR hand pulling efforts on the Wildlife Area.

Army Corps Researchers from their Engineer Research and Development Center tests of bubble curtains to contain herbicides in treatment areas that have

substantial flow is ongoing. This new technology has been used for other applications and seems to hold promise for helping increase the efficacy and safety of aquatic herbicide applications.

There is a consortium of noxious weed managers across the region working on the testing and importation of biocontrol agents for flowering rush.

- ODA: 0 acres surveyed monitored and treated.
- PSU with OSWB Grant: 45 miles of surveys
- Partners: Acres have yet to be reported for the group

Hoary Alyssum, Berteroa Incana, Wallowa County

Cost Center: Lottery

Blooming hoary alyssum at the time of treatment.

Two sites of hoary alyssum are known in NE Oregon. The oldest site of hoary alyssum in NE is near the town of Wallowa in Wallowa County. ODA treatments are timed with early flowering to provide high visibility and to prevent viable seed production. ODA staff gridded the area in late June and only found thirty plants total. A second visit to the site was not completed due to budget shortfalls of Lottery dollars to the noxious weed program caused by COVID-19 shutdowns and resulting reassignment of staff to hemp inspections.

A new site of Hoary Alyssum was discovered this fall by Baker County staff just north of the town of Haines. ODA confirmed identification and assisted in a cursory roadside inventory. This site is only the third known site of hoary alyssum in the state. Currently the known area is about 40 acres in size and incorporates four adjacent private ranch properties. Treatment and inventory efforts with Baker County will begin in spring 2020.

- ODA: 0.01 net acres treated over 96 gross acres inventoried

Orange Hawkweed, Pilosella aurantiacum Wallowa and Morrow Counties

Cost Center: Wallowa Whitman National Forest

Orange hawkweed (Oregon A list) is rare in NE Oregon with only four sites known. Three sites are on the Wallowa Whitman National Forest (WWNF), one is in the town of Wallowa. Two of the sites on the WWNF are in the bottom of Davis Creek Canyon. In 2018 both of those sites were very active likely due to good germination weather and residual herbicides wearing out. Very few plants were found at either site in 2019. In 2020 the upper site only had seven plants and the lower site had only three plants. At the third site (Memaloose), only one plant has been found (in 2019) since 2017. The Wallowa site is in two yards and an adjacent pasture and is monitored and treated by Wallowa County Noxious Weed Control staff. Only eight hawkweed plants were found there in 2020. Sustained intensive control efforts seem to be paying off at all sites.

The few plants remaining at the Davis Creek Sites are largely associated with thick vegetation, like the false hellebore shown here, that hides hawkweeds.

- ODA: < 0.01 net acres treated over approximately 160 gross acres

Plumeless thistle, Carduus acanthoides Wallowa, Morrow and Grant Counties

Cost Center: WWNF, USFS State & Private, OSWB grant dollars

The only Plumeless thistle plants found in by ODA staff in 2020.

Plumeless thistle is an Oregon A-rated weed with a limited distribution in NE Oregon. Grant County has two infestations, Morrow County has one and Wallowa county added three small new sites to total 13 sites. The Grant County project area is around 40,000 acres in total. All known sites were treated in 2020 and only tallied 6.5 net acres of treatment.

Morrow County's plumeless thistle site was found in 2017. Initial treatments of the core area greatly reduced the population. Several peripheral sites were found and treated in 2018 and an aerial treatment of nearly 40 acres was completed over the general area to prevent germination of seeds. No plants were found in 2019. This year Morrow County Staff only found ~100 plants.

Wallowa County found three new plumeless thistle sites this year. They were all small: one was 1.7 acres and the other two were single plant occurrences. All known sites were treated. ODA Noxious Weed Program staff annually treats five of the sites in Wallowa County

on a contract with the Wallowa Whitman NF and using USFS State and Private Funds. None of the sites have produced seed in five years. There was only one plant between all these sites this year. The last Wallowa County site is on the Snake River and is monitored by WWNF staff. It was a historic occurrence of a single plant and no plants have been found there since its original discovery.

ODA Noxious Weed Program Staff did not participate in Morrow, Grant or in any noncontracted plumeless thistle work due to budget shortfalls of Lottery dollars to the noxious weed program caused by COVID-19 shutdowns and resulting reassignment of staff to hemp inspections.

- ODA in Wallowa County: <0.01 acres over 31 gross acres
- Grant Weed Control: 6.5 net acres over 40,000 gross acres
- Morrow County: 0.01 net acre over 360 gross acres

Ravenna grass, Saccharum ravennae Umatilla, Morrow, Umatilla, and Malheur Counties

Cost Center: Previously Lottery funded.

Ravenna grass is an escaped ornamental plant in NE Oregon that has earned a place on the Oregon A-list. It is tall with showy plumes and is cold tolerant. It spreads rapidly by seed and can invade variety of natural environments. ODA Noxious Weed Control Program staff has treated the infestation in the McNary Wildlife Area for the US Army Corps of Engineers three of the last six years. Treatment includes removal of seed heads and spraying leaves with a 2% glyphosate solution. Very little treatment happened in 2018. The population was back to its original level in 2019 but was treated. The site was not visited in 2020 due to budget shortfalls of Lottery dollars to the noxious weed program caused by COVID-19 shutdowns and resulting reassignment of staff to hemp inspections.

Ornamental plants have been documented by ODA Noxious Weed Control Program staff in Milton-Freewater, Pendleton, and Boardman. These sites are small enough to be controlled by the respective county or municipality but treatments have been inconsistent. Malheur County has multiple sites and some are moving out of yards and into waste areas, irrigation ditches, and roadsides. ODA and Malheur County hope to work together on these sites in 2021.

- ODA: 0 acres treated, inventoried or monitored.

Giant Reed Grass, Arundo donax Morrow and Umatilla Counties

Cost Center: Previously Lottery funded

Portland General Electric (PGE) experimentally grew giant reed grass from 2011 to 2017 in the Columbia Basin as a potential source of biofuel for their coal fired power plant in Boardman. That project was terminated in 2017 which shifted PGE's intent from propagation to eradication. ODA Noxious Weed Control staff has worked with Morrow County Weed Control to monitor PGE's eradication effort. Due to curtailment of Lottery dollars to the Noxious Weed Program due to COVID-19, ODA did not participate in eradication or monitoring this year. Information for 2020 was reported to ODA by partners at PGE and Morrow County.

Giant cane was initially established in four locations: three sites on private lands used to test production methods and a fourth site at the Hermiston Agricultural Research Center (HAREC; used by OSU Extension to test control methods).

Two of the three private fields were taken out of Arundo production in 2016; both fields had giant cane volunteer plants emerging in 2017. No plants were found at the "Lloyd" field in 2018 which starts the three-year clock of no plants that is required by statute to declare the plant eradicated from the site. It was also clean in 2019 and 2020 and could be declared eradicated in 2021. At the "Greenwood" field multiple volunteer giant cane plants emerged in 2018 and 2019 from roots where the ground had not been plowed. They were dug up and left on the surface to die by exposure. No plants were found in 2020.

Final harvest at the Fredrickson field was in 2017. It was the primary site used for giant cane production. Arundo canes that had been harvested and bailed were hauled to the Finley Buttes Landfill and buried. The rhizomes in the field were removed with a potato harvester, piled and then burned in a fallow area next to the fields. The field was then disked, tilled, planted with Roundup Ready corn and sprayed to kill remaining giant cane plants. The same cropping scenario also happened in 2019. PGE staff manually removed Arundo volunteers' multiple times in both years. No plants were reported at this site in 2020.

At the HAREC (not the responsibility of PGE) ongoing eradication studies have ended. The field with giant cane was turned up to expose and dry out the rhizomes and was planted to potatoes in 2019 and five plants were rogued. This year the field is in wheat and three plants were pulled.

- ODA staff: 0 acres surveyed and monitored

Wallowa County's Vegetation Manager and the landowner find welted thistle rosettes in the grass during a site visit.

Welted Thistle, Carduus crispus Wallowa County

Cost Center: Lottery, OSWB Grant funds through Wallowa County

Welted thistle (Oregon A list) was discovered in Wallowa County in 2016. It is the only known site of this plant west of the Rockies besides a location in British Columbia. Treatments began in 2016 after an intensive inventory. Less than five net acres were sprayed. In 2017 and 2018 Wallowa County used county weed levy funds and funding from OSWB grants to hand pull and/or treat all known sites. A total of 15 plants were found in 2018. In 2019 sites were monitored on an almost weekly basis through the growing season and only 6 plants were found. In 2020, ODA staff worked with Wallowa County's Weed manager and private landowners to monitor and treat the area. The area had a resurgence of plants from seed this year and quite a few plants were found at historic sites. Also, the county used OSWB dollars to have an inventory done in high risk areas but no new sites were found.

- ODA and partners: ~1.27 net acres treated over 240 gross acres inventoried

Squarrose Knapweed, Centaurea virgata Grant County

Cost Center: OSWB Grant funds through Grant County

The Grant Weed Control manages the only known squarrose knapweed site in northeast Oregon. ODA's Invasive Noxious Weed Control Program first treated an estimated 200 net acres spread across 800 gross acres in 1988. The number of acres has declined over the life of the project to 15 acres in 2004 and to only just over 3.4 acres in 2019 and down to 1.6 acres treated in 2020. ODA Invasive Noxious Weed Control Program staff did not participate in this project this year due to curtailment of Lottery dollars caused by COVID-19 shutdowns and resulting reassignment of staff to hemp inspections.

Grant County: 3,200 gross acres; 3.4 net acres

- ODA: 0 acres inventoried or treated

Rush Skeletonweed EDRR, Chondrilla juncea Union and Grant Counties

Cost Center: Previously lottery funded, OSWB grant funds and Wallowa Whitman & Umatilla National Forests

Rush skeletonweed management is a top priority across eastern Oregon (OR B & T lists). However, this year ODA Invasive Noxious Weed Control Program staff was only able to participate minimally in this project due to curtailment of Lottery dollars caused by COVID-19 shutdowns.

Grant and most of Union county have very little skeletonweed. Grant County has two small sites. The first is 1/4-acre site near Ritter that was discovered in 2016. In 2017 Grant County and ODA's Noxious Weed Control Program surveyed nearly 1,000 proximal acres to that site but found no skeletonweed at all. With help from OSWB grant funding Grant Weed Control inventoried four thousand acres in 2018 and only five small plants were found and treated at the original site. In 2019 only 8 plants were treated by ODA and Grant Weed Control Staff. A second site in Grant County was found late in 2018 by Umatilla National Forest staff near the North Fork of the John Day River just 15 miles away. Forest Service staff pulled 10 plants at the site initially and none were found in 2019. No plants were found in Grant County during 2020 surveys.

The history of skeletonweed in Union County dates back to 2005, but most known populations are still small. In 2019 multiple new sites were discovered to bring the total number of sites to 14. All sites were treated and net acres were less than 2 acres countywide.

ODA's Invasive Noxious Weed Control Program historically has managed three populations of skeletonweed along the I-84 corridor with Union County and ODOT. The large majority of historic sites had no plants in them, but all sites are checked and treatments continue as needed to control regeneration. Intensive control between 2017 and 2019 resulted a 99% plus reduction in net area and 96% reduction in active sites. This year ODA Invasive Noxious Weed Program staff only visited one site, bagging several plants before they went to seed. Union County may have visited these sites this year using OSWB grant dollars but reporting has not been completed yet.

- 0.01 acres (pulled) over 2 acres gross.

US FOREST SERVICE PROJECTS

Meadow Hawkweed, Pilosella caespitosum

Cost Center: Wallowa Whitman and Umatilla National Forests, OSWB grant funds for grantees; previously lottery funds for staff involvement

Meadow hawkweed control is one of the largest projects in northeast Oregon and thus involves many private, state, and federal partners from Union, Wallowa, Umatilla and Morrow counties. However, this year ODA Invasive Noxious Weed Control Program staff was only able to participate minimally in this project due to curtailment of Lottery dollars to the noxious weed program and staff reassignment to hemp duties caused by COVID-19 shutdowns.

Meadow hawkweed is one of the most versatile and aggressive invaders in this part of the state (OR B & T lists). Left unchecked, the plant takes over a wide variety of habitats and forage production systems, often crowding out desirable vegetation. The majority of hawkweed in the region occurs in Wallowa and Union counties. Morrow and Umatilla counties only have one and two sites respectively.

The only site in Morrow County is just west of Ukiah. Only scattered plants were treated during 2019 and 2020 multiple visits to the site by Umatilla NF staff. The Umatilla County sites were detected and treated while conducting tansy ragwort inventory in the Saddle Mountain area in 2017. Three patches, totaling around two acres were treated in 2018. Only a few plants were found at the original sites in 2019 and 2020 and no new sites were found during survey of surrounding areas. Umatilla County uses funding for EDRR inventory and treatment from OSWB grants.

In Union and Wallowa counties, meadow hawkweed is much more widespread and therefore treatment goals are containment and control. That said, most sites are small and herbicide applications are effective. The challenge is finding new sites in a timely manner and getting treatments accomplished before plants go to seed each season. Area cooperators meet often to coordinate work across the landscape, address labor needs, discuss herbicide prescriptions, mapping standards, and other relevant topics.

Invasive Noxious Weed Control Program's help comes as technical assistance, project coordination, OSWB grants, and treatment of outlying sites. Invasive Noxious Weed Program staff were not able to be involved in coordination, implementation or monitoring this year. Group wide efforts will be tallied when grant reporting is finalized.

- ODA: 0.35 net over 3900 gross acres
- Partners: Yet to be reported

"Turkish" Thistle, Carduus cinereous

Cost Center: WWNF Contract and USFS State & Private funds; OSWB Funds for grantees

WWNF staffer treats Turkish thistles in the rugged rims of Imnaha River Canyon.

The identification of a weedy thistle located in Hells Canyon once thought to be Italian thistle (*Carduus pycnocephalus*) underwent scrutiny in 2014 because of several subtle morphological characteristics. Genetic testing and subsequent consultation with national thistle experts indicate that this plant was not a match for any thistle currently known to exist in the United States. Establishing this plant as a new species has been a slow process. Invasive Noxious Weed Program staff provided USDA Agricultural Research Service Botanists with plants samples for a published documentation of the plant phenology and genetic profile and an adjusted thistle key for the carduus genus. The plant is on Wallowa County's A-List and was listed by the OSWB as an A listed Noxious Weed this year.

Wallowa Canyonlands Partnership staff prep to hike into a Turkish thistle site during an early spring treatment.

Inventory and treatments for this plant were complicated in the very remote and steep terrain this plant invades. The safest and most cost-effective herbicide treatment means would be to use a helicopter. The WWNF does not have funding, nor the NEPA or Consultation clearance to use this method to date. Working with the Wallowa Canyonlands Partnership CWMA and WWNF staff, many of the known outlying sites were treated with back pack crews. The main infestations are slated for future aerial treatments. In cooperation with APHIS and local partners the thistle crown weevil (*Trichosirocalus horridus*) was introduced into the population twice in the last 10 years. Multiple monitoring efforts seem to indicate that *T. horridus* did not establish.

- ODA and partners: 2.25 Net acres over 240 Gross Acres

Tansy Ragwort, Senecio jacobaea Umatilla and Union Counties

Cost Center: Previously Lottery and S&P

Tansy ragwort is kept largely in check by biological control agents on the west side of the state. However, tansy is a persistent invader on the east side of Oregon where the agents do not survive the colder winters. Tansy ragwort is found primarily in forested rangelands and riparian areas of eastern Oregon. It is a B & T listed plant for the state.

ODA's Invasive Noxious Weed Program managed a tansy ragwort monitoring and treatment program in NE Oregon for more than 30 years. Due to budget cuts to the noxious weed program in 2016, tansy monitoring and treatment are now conducted by counties and CWMA groups in the region. Over 1,000 small tansy infestations were detected over the years; the number of active locations has dropped to less than ten.

Three areas of active infestation can still be found at Bear Creek and Saddle Mountain in Umatilla County and Looking Glass Creek in Union County. Invasive Noxious Weed Control Program staff have normally helped in treatment efforts and partners received OSWB funding to help address tansy in these areas. ODA staff were unable to participate in this project due to curtailment of Lottery dollars to the noxious weed program caused by COVID-19 shutdowns and reassignment of staff to Hemp inspections. Union and Umatilla County weed programs both had OSWB grant dollars for 2020 work and will report on the project over the next several months.

- ODA: 0 acres treated
- Union and Umatilla Counties: Yet to be reported

Common Bugloss, Anchusa officinalis

Cost Center: S&P, Umatilla National Forest

Crew works to clip and bag all common bugloss flowers to control seed production and treat plants with herbicide to kill the plants.

Common bugloss has two primary population centers in Oregon. One is in Wallowa County and the other is in the Walla Walla River drainage in Umatilla County. Consistent treatment efforts by the Wallowa Canyonlands Partnership for over a decade (funded by OSWB) have largely kept the largest infestation (Upper Imnaha Canyon) contained. Wallowa County also uses OSWB dollars to address two small sites in the Wallowa Valley. Usually Invasive Noxious Weed Program staff are involved in the implementation, survey and monitoring of these projects. However, Invasive Noxious Weed Control Program staff were only able to participate minimally this year due to reassignment to Hemp work and curtailment of Lottery dollars to the Noxious Weed Program caused by COVID-19 shutdowns.

In 2017 Umatilla County commenced with a large common bugloss containment project in the croplands and riparian area of the Walla Walla River near Milton-Freewater. This project was initially funded by OSWB grant dollars but has not been maintained due to lack of capacity at the county.

One small outlying site in Meacham Creek is treated cooperatively by staff from the Umatilla NF, the Confederated Tribes of the Umatilla Indian Reservation, Umatilla County, and the staff form ODA's Invasive Noxious Weed Program. Partners worked together to evaluate past treatment regimens

Umatilla NF staff work to find and treat the only know site of shiny geranium in Eastern Oregon.

and then came together on a cooperative work day to retreat these sites. As a part of this EDRR effort Invasive Noxious Weed Program Staff worked with Umatilla NF staff to locate, verify and treat the only known patch of shiny geranium on the east side of the state.

Union and Baker each have one very small site of common bugloss that county and/or Invasive Noxious Weed Control Program staff treat and monitor. Union County uses OSWB dollars to fund this work.

- 0.46 ac net over 96 acres gross

BUREAU OF LAND MANAGEMENT PROJECTS (BLM)

Rush Skeletonweed Containment Baker, Malheur and Wallowa counties

Cost Center: Lottery (previously), BLM, S&P

Wallowa, Baker, Umatilla, Morrow, and Northern Malheur counties all have significant populations of rush skeletonweed on their north or eastern flanks and containment is the primary goal for these areas. Populations drop drastically as you move west or south in the region triggering cooperators to switch from containment to an early detection and rapid response mode.

In Northern Malheur County, ODA staff has worked closely with Vale BLM and Malheur County staff for many years to prioritize, coordinate and implement a treatment effort designed to protect sensitive endemic plants and croplands from the impacts of rush skeletonweed. In 2019 BLM implemented a large aerial treatment to reduce seed load in the area. That coincided with ground treatments in the near vicinity of the T&E plant sites by ground crews. This year ground crews worked to cursorily evaluate 2019 treatments and to treat areas that were not treated in 2019. The project area is ~40,000 gross acres in size and seventy acres net acres of skeletonweed were treated over 2,400 gross acres. In EDRR efforts elsewhere on BLM lands Invasive Noxious Weed Program staff also treated isolated sites of leafy spurge, whitetop, skeletonweed, yellow starthistle, rush skeletonweed and spotted knapweed in Baker County and Southern Malheur County (total 39.6 Ac Net over 30,000 gross acres).

In Baker County, Tri-County CWMA uses OSWB grant dollars and work with ODA and private land owners to contain skeletonweed and treat isolated populations of common crupina. This serves to protect rangelands and crops to the west but also specifically protects sage-grouse habitat. Sage-grouse conservation is an extremely high priority across the west. Normally, Invasive Noxious Weed Program staff would be involved in implementing, evaluating and monitoring this effort. This year, Invasive Noxious Weed Control Program staff were only able to participate minimally due to reassignment to hemp work and curtailment of Lottery dollars to the Noxious Weed Program caused by COVID-19 shutdowns. Project accomplishments will be reported over the next few months as grants are closed out.

Midges lay eggs in the stem and mites in the growing shoots, both make the plant divert energy from seed production.

Three skeletonweed specific biocontrol agents (midges, mites and a rust) are present in northeastern Oregon. In relatively arid areas like the Columbia Basin and Northern Malheur County the mite and midge seem to have an important impact reducing plant stature and seed production. The skeletonweed rust fungus was only found in three very small sites in the northeast this year and seems to be having little impact on populations in spite of its striking impact on plants.

- ODA staff: 104 acres net over 32,400 gross acres
- Partners: yet to be reported

OTHER ACCOMPLISHMENTS

Invasive Annual Grasses (IAG's) wreak havoc on rangelands across the west as they alter fire cycles that create a self-feeding loop and promote their own dominance. The Western Governors Association and the Western Invasive Species Council, and SageCon in Oregon are all working to manage IAG's at a meaningful scale and with our best science and technology. To help with that effort in Oregon Invasive Noxious Weed Program staff worked with Harney County Wildfire Collaborative, SageCon, and the High Desert Partnership to help organize a virtual Invasive Annual Grass workshop. Over two hundred people attended from around the west. The agenda included overviews of current science, interactions and management of IAGS and wildfire, integrated treatment options, restoration and a look at barriers and opportunities. Researchers and managers got discussion opportunities. Fire and weed people got to compare notes. It was very well received. Invasive Noxious Weed Program Staff also attended the Oregon SageCon Summit.

Invasive Noxious Plant Program staff worked with APHIS and local cooperators to establish four Standard Indicator Monitoring Plots (SIMP) for monitoring biocontrol management impacts of the yellow starthistle crown weevil (*Ceratapion basicorne*) and one for common crupina rust fungus (*Ramularia crupinae*). SIMP is a standardized transect monitoring method that tracks plant community change over

time. SIMP plots are established at a site prior to release of biocontrol agents and are paired with similar sites where no agents are released. Managers across the Pacific Northwest use this method so that data from across the region can be pooled and the impacts of site variables can be elucidated.

Invasive Noxious Weed Program staff helped to coordinate the release of Dalmatian toadflax stem boring weevils at three sites and Canada thistle rust (*Puccinia punctiformis*) at three new sites.

APHIS biocontrol staffer Gavin Carmen lays out a SIMP plot in a yellow star infestation to monitor the future change in plant community as a result of releasing the yellow starthistle crown weevil.

Staff from the Wallowa Whitman National Forest spread Canada thistle rust spores in the Wallowa Mountains. The sprayer helps get the spores to stick to the plants.

Monitoring "watch list" species is important to evaluate the level of invasiveness of nonnative plants. It is the first step in deciding if ODA Invasive Noxious Weed staff should perform a risk assessment and potentially list the plant as a noxious weed. Blueweed (*Echium vulgare*) is spreading out of riparian areas in Umatilla County. Rose Campion (*Lychnis coronaria*) is a common ornamental flower in seed mixes that was planned at homesteads. In several areas of the Snake River and the Lostine drainage in Wallowa County, this plant has invaded excellent condition rangelands in high density patches and is proving hard to kill. Three species of rose (Rosa canina, eglanteria, multiflora) are taking over arid range-lands and old fields across NE Oregon forming a dense impenetrable thicket in what used to be open grasslands.

A new single plant site of blueweed was found (and treated) along 1-84 outside of Pendleton.

Rose campion has invaded this high-quality blue bunch wheatgrass site in Hells Canyon.

A site where at least two species of "rose brush" are forming impenetrable thicket in what used to be open grasslands.

Four nonnative plant species were newly discovered in the NE region this year. Spreading Hedge Parsley (*Torilis arvensis*) was found growing on the Washington side of the Oregon border in 2019. ODA confirmed a historic site in Umatilla County near Pendleton and further looking by Umatilla County staff found that there is a large infestation in the Umatilla River drainage near Milton Freewater. No follow up inventory, evaluations or treatments were done by ODA staff. Hedge parsley should be evaluated for listing in light of these new discoveries. As mentioned previously, shiny geranium is an aggressive annual weed that is common on the west side of Oregon but was only just found in Eastern Oregon. A sorghum species was discovered

The border hedge parsley site in 2020. The hedge parsley shows up as the light green/grey wash just above the road. Scotch thistle was sprayed by an uneducated crew, so the hedge parsley was not.

growing in scattered patches along the roadside right-of-way outside of Milton Freewater. The plant is likely to be *Sorghum bicolor* (escaped crop) or Johnson Grass (*Sorghum halepense*) a well-known perennial noxious weed in many of the lower 48 states. Sea holly (*Eryngium spp*) was discovered on roadsides near Elgin and was treated by Union County Weed Control. It was not in flower yet so a positive identification of species was not made. Hopi Tea, a native of the desert Southwest was identified and a cursory inventory of the population was completed in the Keating Area of Baker County. Managers are working to evaluate its invasiveness and ecology.

Sea Holly is thought to be an escaped ornamental.

Hopi Tea, though native to the US, is spreading and acting "weedy" in Baker County.

EDUCATION AND OUTREACH

Invasive Noxious Weed Control Program staff presented about weed identification and biocontrol for the NE Oregon Noxious Weed Contractor's meeting and at the Tri-County CWMA contractors training. Staff also updated the OSWB and members of the public on the overall status of noxious weeds in the NE Region (Feb 2020) and presented information about Turkish thistle for potential listing.

Invasive Noxious Weed Control Program staff were only able to participate minimally in the coordination, monitoring and education/outreach that is such a huge part of our normal role this year due to reassignment to hemp work and curtailment of Lottery dollars to the Noxious Weed Program caused by COVID-19 shutdowns.

Southeast Region

By Bonnie Rasmussen and Rob Banks

BLM-BURNS DISTRICT

Steens Wilderness

ODA/BLM Steens Wilderness project was completed in the 2020 season. ODA was unable to participate in the helicopter treatment but BLM staff did make an application at the Indian Ruins and Wild horse ridge sites. Utilizing a UTV ODA staff treated plants at Ankle Creek Historical Site, along the road to Ankle Creek and at the historical site before the Big Indian Creek Crossing. All locations had mature plants and rosette growth.

- .11 net acres treated
- 2500 gross acres surveyed

Steens Moutain, Southwest Oregon.

BIOLOGICAL CONTROL

ODA staff monitored releases of *Hylobius transversovittatus* and *Galerucella pusilla* in Stinkingwater Creek. *Puccinia punctiformis* above Page Springs Campground. *Urophora cardui* near Eusobio Ridge. *Mecinus janthiniformis* sites in Devine Canyon and the Burns Front Range.

P Hill Project

The P-Hill project is located southwest of town of Frenchglen along both sides of Highway 205 up to the intersection with the Rock Creek Road and breaking over to the downward side of P-Hill, stretching almost to Frenchglen. The project area also includes an often disturbed refuse area, a gravel pit area, rangeland and the Highway 205 Corridor that passes through the area. The project targets are primarily Mediterranean sage and Scotch thistle. Over the past 20 years plant numbers have fluctuated due to weather and fire events. This season ODA completed a spring and fall treatment utilizing UTV units.

- 20.67 net acres treated
- 600 gross acres surveyed

Treatment of Scotch thistle at P-Hill Project Area.

Stinkingwater Creek Project

The Stinkingwater Creek project focuses on controlling targeted noxious weeds including perennial pepperweed, Scotch thistle, spotted knapweed, diffuse knapweed, Russian knapweed and Purple loosestrife on Stinkingwater Creek Corridor. On the private sections of the project area, staff only focuses on purple loosestrife, spotted knapweed and diffuse knapweed. The project encompasses the Stinkingwater Creek Drainage from headwaters to the confluence with the Malheur River and several side tributaries. In 2020 ODA crew covered several key sections of the drainage. UTV units were utilized for the treatment.

- 1 net acre treated
- 200 gross acres surveyed

BLM-VALE DISTRICT

Three Forks Project Area

The ODA staff completed a summer treatment for this area in July at Three Forks. The Three Forks Campground project area showed increase in Scotch thistle and Leafy spurge with a reduction in perennial pepperweed and whitetop.

The yellow starthistle site treated in 2013 near Grassy Reservoir was extensively surveyed and again no plants were found this season.

- 3.5 net acres treated
- 2,500 gross acres surveyed

Three Forks Project Area.

BLM, Pascal Reservoir—Yellow starthistle treatment.

Pascal Reservoir Project Area

ODA staff found no yellow starthistle in the Pascal Reservoir project area. Scotch thistle numbers continue to be significant. No new areas of infestation were found and the rim above Jordan Creek Canyon remained clean. Staff continues to coordinate with Jordan Valley Cooperative Weed Management Area to ensure known plants on adjacent private lands to the north and southeast are monitored. Visibility and the sheer size of the gross project area continues to be a significant challenge. Lack of summer and fall moisture caused crew to postpone any fall treatment in the project area.

Leslie Gulch Succor Creek Area

This season's crews started with treatment of rush skeletonweed on the Leslie Gulch Road in late august. Crewmembers went back in early November and treated rush skeletonweed from the Leslie Gulch Road and down into Dago Canyon.

- 12 net acres treated
- 2,500 gross acres surveyed

BLM, Leslie Gulch Project Area—Rush skeletonweed flagged for treatment.

Basque Station

ODA crew spent several days treating the diffuse knapweed site across from Basque station. Staff worked in the project area for two days, but were unable to treat the site in totality before travel was restricted because of covid. Treatment was performed with an UTV.

- 6 net acres treated
- 200 gross acres surveyed

Basque Station—Diffuse knapweed sites.

Dago Canyon

During fire fighting efforts in the summer of 2015 a new spotted knapweed site was identified. Cat lines and the fire both went through a good portion of the site exasperating the situation. A fall treatment was implemented in 2015 and has been followed up yearly since. A ranger was used and applications where made mostly with handgun. Limited plants were found throughout the known project area.

- .67 net acres treated
- 1,000 gross acres surveyed

Dago Canyon Project Area—Spotted knapweed.

LOTTERY FUND PROJECTS

African Rue, Peganum harmala

In early September 2008, a contractor for the Bureau of Indian Affairs noted a possible infestation of African rue on tribal allotments located in the Harney Basin southeast of Burns. ODA verified the plant as African rue. The initial response plan was to treat outlier sites, roadsides, barnyards, and pivots for containment and to prevent further spread. In 2008, ODA spent several weeks doing the initial site delimitation, which revealed a project area of 2,700 gross acres and 19 landowners including Department of State Lands, private, and tribal lands. An African Rue Cooperative Weed Management Plan was completed in 2009. This project is now largely funded by an Oregon State Weed Board Grant to Harney County and is monitored by ODA staff.

In 2020, Harney County treated the African rue with Capstone (triclopyr and aminopyralid) at 5 pints to the acre. Included in the mix was Escort XP at 1.33 ounces per acre, 2,4-D product at 1 pint per acre, a sticker (Syltac) at 1 pint per 50 gallons and a spray marking dye. Transects were completed covering one pasture at a time. A total of 9.5 net acres were treated in 2020, 8.5 net acres during a first pass in June and 1 acre in August during a second pass. This is up from the past few years but is likely due to conditions being just right for the African rue to fully express itself.

Hart Mountain National Antelope Refuge

Do to a reduction in Lottery Funds there was no work completed at Hart Mountain in 2020.

Southeast EDRR

Due to reductions in lottery funding southeastern Oregon EDRR was offline for the 2020 season.

SE Region Biological Control Work

Due to reductions in lottery funding southeastern Oregon Biological Control work was offline for the 2020 season.

In the past ODA assisted with biocontrol work on diffuse knapweed, Canada thistle, Dalmatian toadflax and Russian knapweed on non-Federal lands. Also included was monitoring of *Larinus minutis*, *Bangasternus fausti*, *Mecinus janthiniformis*, *Puccinia punctiformis*, *G. pusilla*, *Aulacidea acroptilonica* and *Jaapiella ivannikovi* in various SE Oregon Counties. In the past crew spent time looking at Russian knapweed infestation issues along organic farming operations.

Spotted knapweed along Forest Service road on the Malheur National Forest in 2019.

US FOREST SERVICE

Emigrant Creek Ranger District

ODA staff continued efforts with the Malheur Forest focusing on the southeastern portion of the forest. Specifically, the interface with private and BLM lands where annual grass issues are known to occur. In addition to covering those areas, staff continued to survey the road network between State Highway 395 and the eastern boundary of the forest. The trend of reduced weed problems continued in the focal area. Staff time was reduced on the Forest this year but during field work no new sites were located.

REGIONAL EDUCATION AND OUTREACH ACTIVITIES

Typically numerous presentations are given at meetings and trainings through out the year as well as consultations to ranchers, land managers and public entities. Weed Board, SWCD and CWMA meetings are attended in Grant County, Lake County, Malheur County, and Harney County. 2020 this all came to a stop but staff continues to be part of meetings through online conferences and meetings.